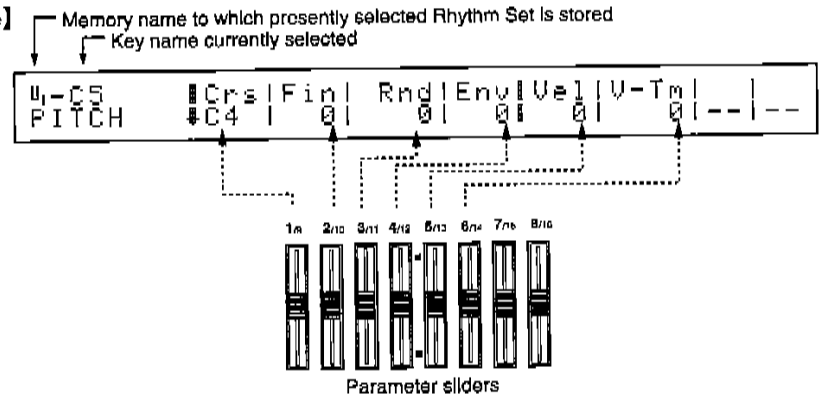
(3) In Rhythm Edit mode, screens like the following will be displayed.

【Example】


Memory name to which presently selected Rhythm Set is stored
Key name currently selected
U1-C5
PITCH
Crs | Fin | Rnd | Env | Vel | V-Tm | | |
C4 | 0 | 0 | 0 | 0 | 0 | -- | --
1/9 2/10 3/11 4/12 5/13 6/14 7/15 8/16
Parameter sliders

The values from the left correspond to parameter sliders 1 — 8. Move the appropriate parameter slider to modify the desired value.

For pages in which " ⇑ " or " ⇓ " are displayed, you can press [▲]/[▼] to select other screens.

(4) The upper left of the display will show a symbol indicating the memory of the Rhythm Set of the currently selected Rhythm Tone, and the key name to which the Rhythm Tone is assigned. To select a Rhythm Tone to edit, you can either press the key to which that Rhythm Tone is assigned, or press TONE SELECT [1] — [4]. The key name display will change to indicate the selected key.

TONE SELECT 1

Each time you press this button, the currently displayed key name will go down one octave.

TONE SELECT 2

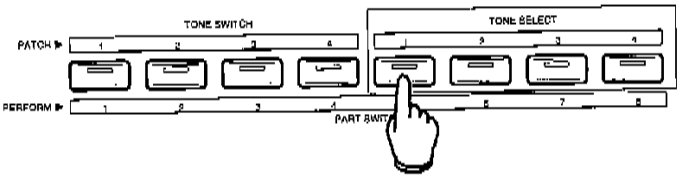
Each time you press this button, the key name will go down a semitone.

TONE SELECT 3

Each time you press this button, the key name will go up a semitone.

TONE SELECT 4

Each time you press this button, the currently displayed key name will go up one octave.



Explanation of parameters

Here we will explain the parameters you can set in Rhythm Tone Edit mode, and how to use the buttons.

Parameters accessed by pressing [EFFECT]

FX SEND (effect send) page

Dry *Dry level* 0—127

This parameter sets the level of the dry sound (not processed by the effect).

Chorus *Chorus send level* 0—127

This parameter sets the level of the sound sent to the chorus.

Reverb *Reverb send level* 0—127

This parameter sets the level of the sound sent to the reverb.

PERFORM CHORUS/REVERB (Performance chorus/reverb) page

The following two pages contain parameters for chorus and reverb. Be aware that these are Performance parameters which have been read into the temporary area. This means that effect unit settings you make here for a Rhythm Set need to be stored as Performance data. However, if this Rhythm Set is selected from a different Performance, the effect settings of that Performance will be used.

Type *Chorus type* CHO1—3

This parameter selects the type of chorus effect.

CHO1	A conventional chorus.
CHO2	A chorus with slower rate. You can also apply feedback to use this as a flanger.
CHO3	A chorus with greater depth. An effect of extreme detuning can be produced.

Lev *Chorus level* 0—127

This parameter sets the level of the chorused sound.

Rat *Chorus rate* 0—127

This parameter sets the modulation speed of the chorus.

Dep *Chorus depth* 0—127

This parameter sets the modulation depth of the chorus.

Fbk *Chorus feedback* 0—127

This parameter sets the level of the chorused sound that is fed back into the chorus. This allows more complex chorus effects to be produced.

Out *Output switch* MIX/REV

This parameter specifies the output destination of the chorus. When MIX is selected, the chorus sound and reverb sound will be mixed with the dry sound. When REV is selected, the chorus sound will be sent through the reverb and then mixed with the dry sound.

Type *Reverb type* ROOM1 — 2/STAGE1 — 2/HALL1 — 2/DELAY/PAN - DRY

This parameter selects the type of reverb.

ROOM1	short reverb with dense reverberation
ROOM2	short reverb with sparse reverberation
STAGE1	reverb with more late reverberation
STAGE2	reverb with strong early reflections
HALL1	clear reverb
HALL2	rich reverb
DELAY	conventional delay
PAN - DLY	delay with echoes panned left/right

Level *Reverb level* 0 — 127

This parameter sets the level of the reverb sound.

Time *Reverb time* 0 — 127

If the Reverb Type has been set to ROOM1 — HALL2, this parameter sets the length of reverberation. If the Reverb Type has been set to DELAY/PAN - DLY, this parameter sets the delay time.

F - Back *Delay feedback* 0 — 127

If the Reverb Type has been set to DELAY, this parameter sets the level of the delayed sound that is fed back into the delay.

● Parameters accessed by pressing [CONTROL]

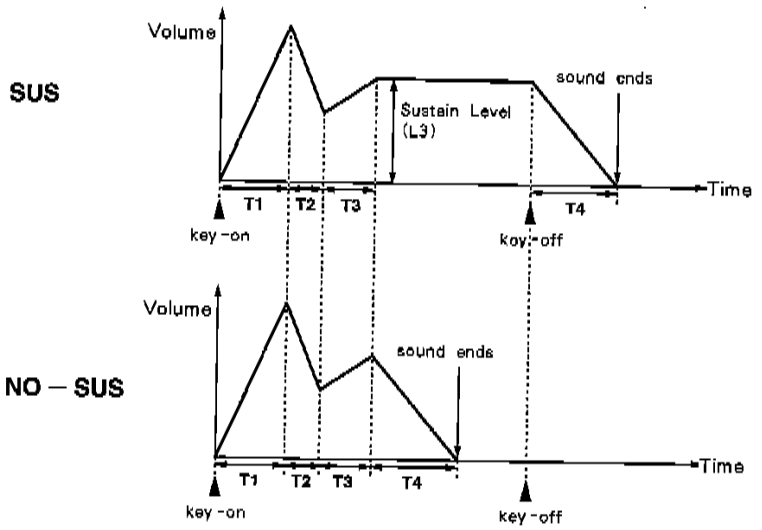
CONTROL page

Bender *Bend range* 0 — 12

This parameter determines the range of pitch change that results when the bender/modulation lever is moved to right or left.

Env - Mode *Envelope mode* NO - SUS/SUS

This parameter determines how the Rhythm Tone will be sounded. When NO - SUS is selected, the time between the sustain level (L3) and the key - off will be ignored, and the decay will begin immediately. This means that the sound will always end after the same length of time (T1+T2+T3+T4). When SUS is selected, the sustain level will be maintained until key - off. This allows you to use key - off to mute the Rhythm Tone.



Mute-Grp *Mute group* OFF/1—31

This parameter assigns the Rhythm Tone to a Mute Group. When a Rhythm Tone is sounded, any other currently-sounding Rhythm Tone in the same mute group will be muted. 31 separate mute groups can be used. When OFF is selected, that Rhythm Tone will not mute any other Rhythm Tone, nor will it be muted by any other Rhythm Tone.

● Parameters accessed by pressing [WAVE/LFO]

WAVE page

Switch *Tone switch* ON/OFF

This parameter specifies whether the currently selected Rhythm Tone will be sounded (ON) or not (OFF).

Group *Wave group* INT/EXP/CARD

In the same way as for a standard Tone, you can select the waveform that will be the basis of the Rhythm Tone. The Wave Group parameter specifies the memory from which the waveform will be read: Internal (INT), Wave Expansion Board (EXP) or PCM card (PCM).

No *Wave number*

This parameter specifies a waveform from the selected wave group. The wave name of the selected number will be displayed in parentheses ( ).

● Parameters accessed by pressing [PITCH]

PITCH page

Crs *Pitch coarse* C - 1 — G9

This parameter selects the key pitch within the waveform to be sounded.

* Some waveforms have an upper pitch limit. If you set Pitch Coarse above this limit, the waveform will sound at its upper pitch limit.

Fin *Pitch shift fine* −50 — +50

This parameter adjusts the pitch of the Rhythm Tone in steps of 1/100 of a semitone.

Rnd *Random pitch depth*

0/5/10/20/30/40/50/70/100/200/300/400/500/600/800/1200

This parameter adds random variation to the pitch of the Rhythm Tone within the specified range. The setting value is in units of 1/100 of a semitone.

Env *Pitch envelope depth* −12 — +12

This parameter determines the maximum pitch change produced by the pitch envelope.

Vel *Velocity envelope level sensitivity* −63 — +63

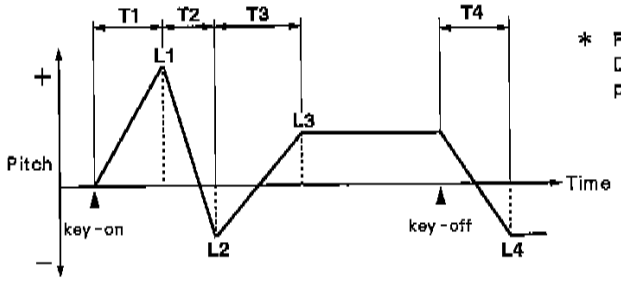
This parameter determines how velocity will affect the pitch envelope levels.

V-Tm *Velocity envelope time sensitivity*

−100/−70/−50/−40/−30/−20/−10/0/+10/+20/+30/+40/+50/+70/+100

This parameter determines how velocity will affect the overall pitch envelope time.

P-ENV (pitch envelope) page



* For negative (−) values of Envelope Depth, the polarity (+/−) of the pitch change will be inverted.

T1 **T2** **T3** **T4** 0 — 127

These parameters set the pitch envelope times T1, T2, T3 and T4. These determine the time over which one pitch will change to the next (for example, from L1 to L2).

L1 **L2** **L3** **L4** −63 — +63

These parameters set the pitch envelope levels L1, L2, L3 and L4. These determine the pitch (change) at each point.

● Parameters accessed by pressing [TVF]

These parameters determine how the TVF will function.

TVF page

Typ *Filter type* LPF/HPF/OFF

This parameter selects the TVF type. LPF is a low - pass filter and HPF is a high - pass filter. When OFF is selected the filter will have no effect.

Cut *Cutoff frequency* 0—127

This parameter sets the frequency (cutoff frequency) at which the TVF will begin affecting the frequencies of the waveform.

Res *Resonance* 0—127

This parameter determines the amount of emphasis applied to the frequencies around the cutoff frequency.

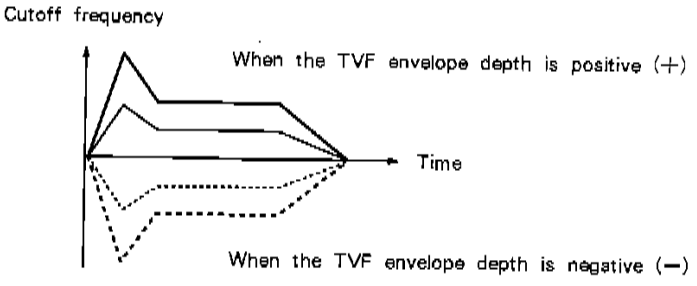
Mode *Resonance mode* SOFT/HARD

This parameter selects the type of resonance. When SOFT is selected the resonance will be soft, and when HARD is selected, the resonance will be sharp.

* If the Tone is played with a high level, or if the cutoff frequency is high, the effect of resonance may be less noticeable.

Env *TVF envelope depth* -63—+63

This parameter determines the maximum range over which the TVF envelope will affect the cutoff frequency.



Vel *Velocity envelope level sensitivity* -63—+63

This parameter determines how velocity will affect TVF envelope levels.

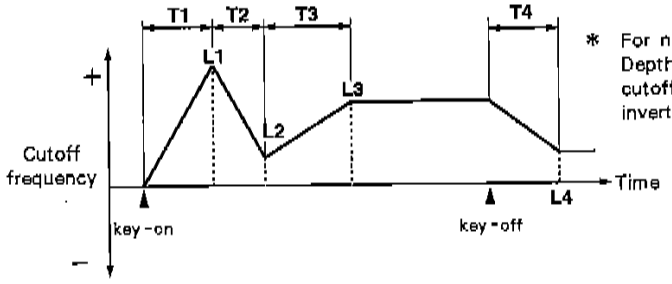
V-Tm *Velocity time sensitivity*

-100/-70/-50/-40/-30/-20/-10/0/+10/+20/+30/+40/+50/+70/+100

This parameter determines how velocity will affect the overall TVF envelope times.

TVF - ENV (TVF envelope) page

The parameters in this page determine how the cutoff frequency will change over time (TVF envelope).



* For negative (−) values of Envelope Depth, the polarity (+/−) of the cutoff frequency change will be inverted.

T1 **T2** **T3** **T4** 0—127

These parameters set the TVF envelope times T1, T2, T3 and T4. These will determine the time over which the cutoff frequency will move from one level to the next (for example from L1 to L2).

L1 **L2** **L3** **L4** 0—127

These parameters set the TVF envelope levels L1, L2, L3 and L4. These will determine the cutoff frequency at each point. The values you set here are adjusted by the TVF Envelope Depth parameter before they are applied to the cutoff frequency.

● Parameters accessed by pressing [TVA]

These parameters determine how the TVA will function.

TVA page

Level *Tone level* 0—127

This parameter determines the level of the Rhythm Tone.

Velo *Velocity level sensitivity* −63—+63

This parameter determines how greatly velocity will affect the level.

V-Time *Velocity time sensitivity*

−100/−70/−50/−40/−30/−20/−10/0/+10/+20/+30/+40/+50/+70/+100

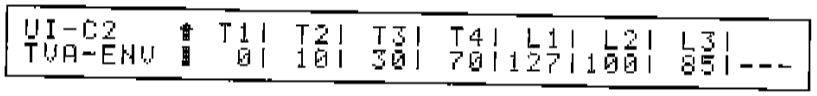
This parameter determines how velocity will affect the overall time of the TVA envelope.

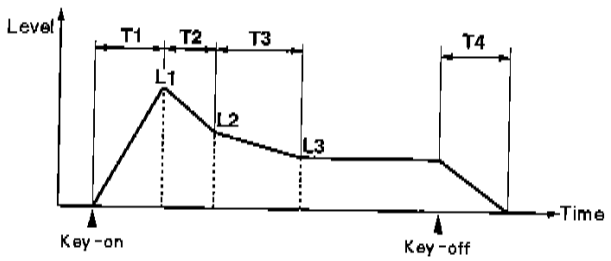
Pan *Pan* L64—0—63R/RND

This parameter determines the stereo position of the Rhythm Tone. With a setting of RND, the stereo position will change randomly.

TVA - ENV page

This page contains parameters which determine how the level will change over time (TVA envelope).





T1 **T2** **T3** **T4** 0—127

These parameters set the TVA envelope times T1, T2, T3 and T4. These will determine the time over which the volume will change from one level to the next (for example from L1 to L2)

L1 **L2** **L3** 0—127

These parameters set the TVA envelope levels L1, L2 and L3. These will determine the volume at each point. Higher levels result in higher levels. For the TVA envelope, the envelope level following key - off will be 0.

4.Commands

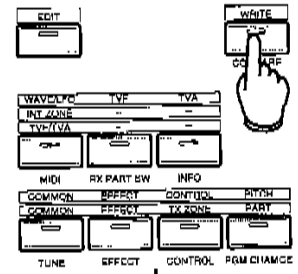
Write mode

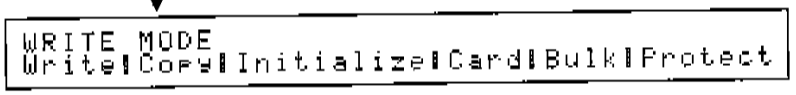
Write mode is the mode in which you perform data management operations such as writing edited data into memory, or copying or transmitting data.

* Data management operations are called "commands", and to use a command to perform an operation is to "execute" the command.

Operation guide

(1) In Patch Play mode or any other mode, press [WRITE]. You will enter Write mode and the following will appear in the display of the synthesizer sound source section.

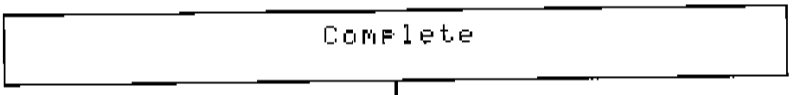




(2) Use [◀]/[▶] or parameter slider 1 to select the command you wish to execute. The selected command will blink.

(3) Press [ENTER] and the command setting display will appear.

(4) When you are expected to execute the command, the synthesizer sound source display will read Press [ENTER]. After you finish making all necessary settings, press [ENTER] to execute the command. When complete, the following display will appear.



The display which appears before pressing [WRITE].

The display will show "Complete", and you will then be returned to the display (mode) before you pressed [WRITE] and the mode before you entered command mode.

* If you wish to quit without executing, press [EXIT]. Each time you press the button you will return to the immediately previous display.

* If "▲" or "▼" appears in the command setting display, you can use [▲]/[▼] to select other displays.

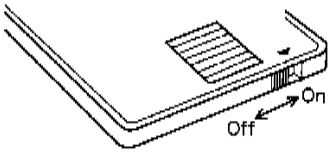
The settings for step (4) will be explained in the sections covering each command.

Write

The Write command writes edited data into user memory (such as internal memory or a DATA card).
The display that appears will depend on the mode from which you pressed [WRITE].

* When writing data into internal user memory, protect (p.99) must be turned off. If you attempt to write data while protect is on, a warning message will appear, and then the protect on/off setting display will appear. Use [◀][▶] to get the word "Internal" to blink, and then press [DEC] to turn protect off.

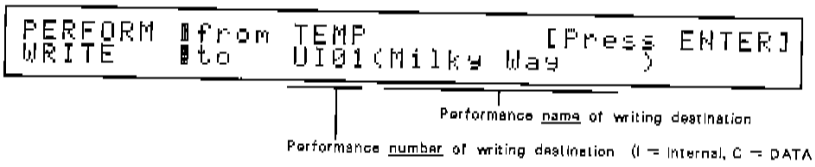
* When writing data into a DATA card, turn the protect switch of the DATA card off while it is inserted into the DATA card slot. After writing the data, turn the protect switch on to protect the data.



Performance Play/Performance Edit Mode → Write

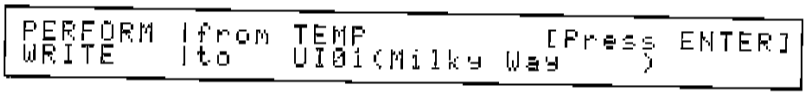
PERFORM WRITE *Perform write*

By pressing [WRITE] from Performance Play mode or Performance Edit mode, you can write the data of the temporary area into a Performance.


PERFORM WRITE
from TEMP
to U101(Milky Way)
[Press ENTER]
Performance name of writing destination
Performance number of writing destination (I = Internal, C = DATA card)

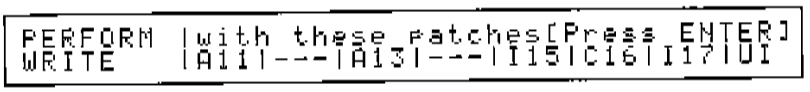
[Procedure]

Use the Patch group switches and BANK/NUMBER (or [INC]/[DEC] and parameter slider 1) to select the Performance number into which you wish to write the data. The name of the selected Performance will be displayed in parentheses ( ).



Pressing [PATCH] in the above display will turn the JV - 90 to the mode that allows you to write the Performance data and the Patch used in the Performance all at once.

The display shows the destination Patch of each Part.



Here, the JV - 90 compares the data on the Temporary and Patch in each Media. Since it is unnecessary to write the same data, " – – – " is shown instead of the Patch Number.

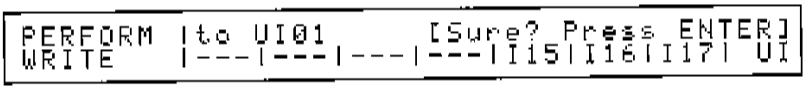
Now, you can change the destination Patch Numbers using the Parameter Slider, Cursor or [INC]/[DEC]. The same Patch Number, however, cannot be selected.

When " – – – " is selected, the Patch in that Part is not written.

Performance data will be written into the new Patch Number selected here.

If you wish to compare the Temporary Patch at the cursor position with the destination Patch, press [WRITE] here. To leave the Compare mode, simply press [WRITE] again.

Pressing [ENTER] causes the screen to show the following message.



Here, the Parts that used to have the destination Media that could not be written, such as Preset, in the previous display are shown as " – – – ", and therefore will not be written. To write data, select UI or UC.

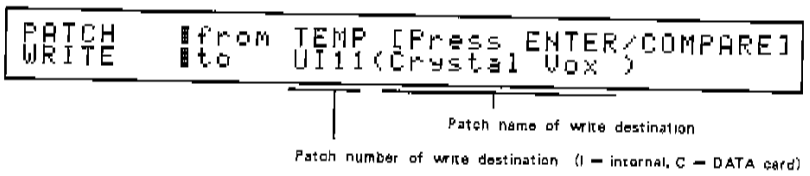
Press [ENTER], and the specified Part will be written, then the screen will be returned to the previous display before the unit being turned to the WRITE mode.

* If you write the new Patch into the Patch used for the other Performance, the Performance will sound different.

Patch Play/Patch Edit Mode → Write

PATCH WRITE *Patch write*

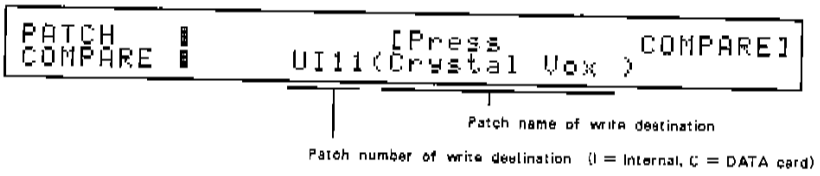
By pressing [WRITE] from Patch Play mode or Patch Edit mode, you can write the data of the temporary area into a Patch.


PATCH WRITE
from TEMP [Press ENTER/COMPARE]
to U11(Crystal Vox)
Patch name of write destination
Patch number of write destination (I = internal, C = DATA card)

[Procedure]

Use the Patch group switches and BANK/NUMBER (or [INC]/[DEC] and parameter slider 1) to select the Patch number into which you wish to write the data. The name of the selected Patch will be displayed in parentheses ( ).

Next, press [WRITE (COMPARE)] and the Patch Compare display will appear, allowing you to check the sound of the writing destination Patch.

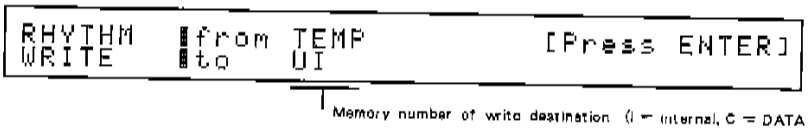

PATCH COMPARE
[Press COMPARE]
U11(Crystal Vox)
Patch name of write destination
Patch number of write destination (I = Internal, C = DATA card)

In this display you can still change Patch numbers. After checking the sound of the Patch to make sure of the writing destination, press [WRITE (COMPARE)]. (You will return to the Patch Write display.)

Rhythm Play/Rhythm Edit Mode → Write

RHYTHM WRITE *Rhythm set write*

By pressing [WRITE] from Rhythm Play mode or Rhythm Edit mode, you can write the data of the temporary area into a Rhythm Set.



[Procedure]

Use the Patch group switches (or [INC]/[DEC], BANK/NUMBER, and parameter slider 1) to select the Rhythm Set into which you wish to write the data.

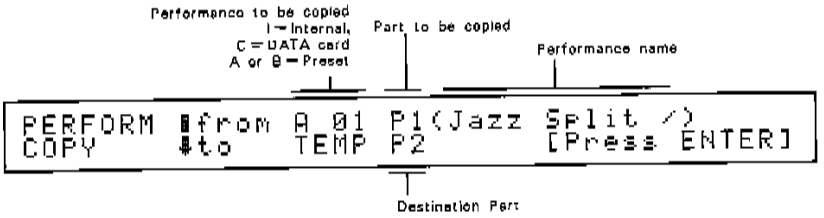
● Copy

These commands copy Performance, Patch, or Tone data into the temporary area.

Performance Play/Performance Edit Mode → Copy

Performance part copy

This command copies a specified Part of a Performance into a Part of the Performance in the temporary area.


Performance to be copied
I = Internal,
C = DATA card
A or B = Preset
Part to be copied
Performance name
PERFORM ▮from A 01 P1(Jazz Split /)
COPY ▮to TEMP P2 [Press ENTER]
Destination Part

[Procedure]

Use the Patch group switches and BANK/NUMBER (or [INC]/[DEC] and parameter slider 1) to select the Performance number from which you wish to copy the data. The name of the selected Performance will be displayed in parentheses ( ).

Select the Part from which you wish to copy using parameter slider 2, or use [◀]/[▶] to move the cursor and [INC]/[DEC] to make the selection.

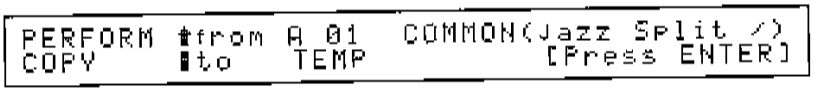
Use PART SWITCH ([1]—[8]) to select the copy destination part.

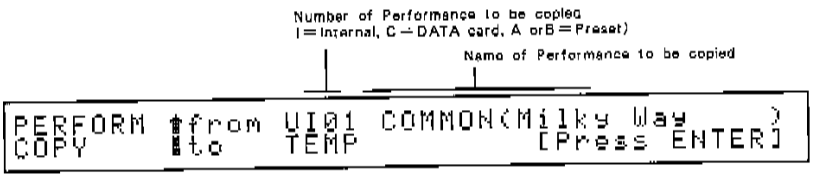
If the Part to be copied is "TEMP", it will be the temporary area of performance.

Press [WRITE] to choose "TEMP".

Performance common copy

This command copies the Performance name, key mode, and effect unit settings from a selected Performance in memory into the Performance in the temporary area.




Number of Performance to be copied
I = Internal, C = DATA card, A or B = Preset)
Name of Performance to be copied
PERFORM ▮from UI01 COMMON(Milky Way)
COPY ▮to TEMP [Press ENTER]

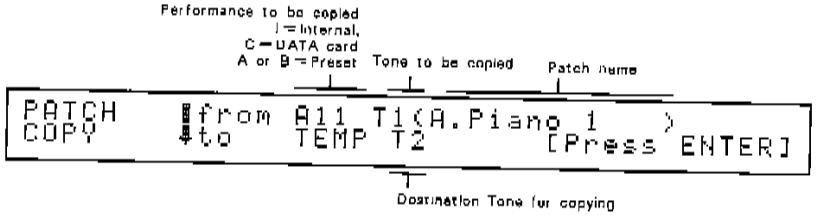
[Procedure]

Select the copy source Performance number using the Patch group switches and BANK/NUMBER (or [INC]/[DEC] and parameter slider 1). The name of the selected Performance will be displayed in parentheses ( ).

Patch Play/Patch Edit Mode → Copy

Patch tone copy

This command copies data from a selected Tone of a Patch into the specified Tone of the Patch in the temporary area.



[Procedure]

Select the copy source Patch number using the Patch group switches and BANK/NUMBER (or [INC]/[DEC] and parameter slider 1). The name of the selected Patch will be displayed in parentheses ( ).

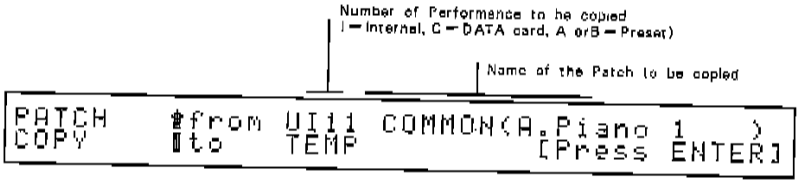
Select the copy source Tone using parameter slider 2, or use [◀]/[▶] to move the cursor and use [INC]/[DEC] to make the selection.

If the tone to be copied is "TEMP", it will be the temporary area of patch.Press [WRITE] to choose "TEMP".

Specify the copy destination Tone using TONE SELECT([1]—[4]).

Patch common copy

This command copies parameters common to all Tones from a selected Patch into the Patch in the temporary area.


Number of Performance to be copied
(I = Internal, C = DATA card, A or B = Preset)
Name of the Patch to be copied
PATCH COPY
▮from U11 COMMON(A.Piano 1)
▮to TEMP
[Press ENTER]

* This will copy data such as effect unit settings, key assign (POLY/SOLO), etc. (→ Patch Edit mode, p.48)

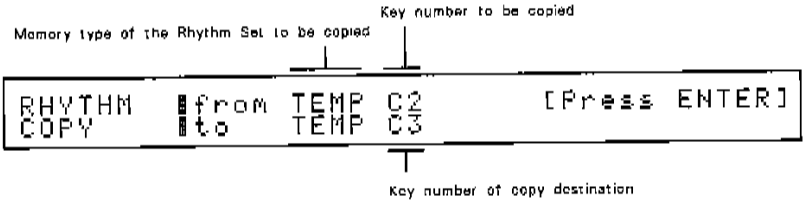
[Procedure]

Select the copy source Patch number using the Patch group switches and BANK/NUMBER (or [INC]/[DEC] and parameter slider 1). The name of the selected Patch will be displayed in parentheses ( ).

Rhythm Play/Rhythm Edit Mode → Copy

Rhythm key copy

This command copies the Rhythm Tone data of a key in a specified Rhythm Set into a key of the Rhythm Set in the temporary area.


Key number to be copied
Memory type of the Rhythm Set to be copied
RHYTHM COPY
from TEMP C2
to TEMP C3
[Press ENTER]
Key number of copy destination

[Procedure]

Select the copy source memory using the Patch group switches and BANK/NUMBER (or [INC]/[DEC] and parameter slider 1).

Select the copy source key number using parameter slider 2, or use [◀]/[▶] to move the cursor and use [INC]/[DEC] to make the selection.

Specify the copy destination key number by pressing the desired key of the keyboard.

If the Rhythm Set to be copied is "TEMP", it will be the temporary area of rhythm set.Press [WRITE] to choose "TEMP".

● Initialize

Initialization is an operation which erases the data currently in the Temporary Area and restores the unit's internal factory settings (the current Bank No.) on the internal area.

* Initialization automatically erases any data you have created in the Temporary Area.

* To initialize all the data in the JV - 90, switch off the unit, then switch it on again while holding down [16] in PATCH GROUP.

Performance Play/Performance Edit Mode → Initialize

Performance Initialize

This operation erases the Performance data currently in the Temporary Area and restores the internal factory setting on the internal area (P.127) for that Performance Number.

Patch Play/Patch Edit Mode → Initialize

Patch Initialize

This operation initializes the Patch data currently in the Temporary Area and restores the internal factory setting (P.127) for that Patch Number.

* If you want to select the patch, "INITIAL DATA" in JV - 1000/80, please select JV - 80 compatible preset b88. (P.130)

Rhythm Play/Rhythm Edit Mode → Initialize

Rhythm Key Initialize

This operation does not initialize the entire Rhythm Set currently in the Temporary Area, but initializes only the Rhythm Tone data assigned to a specified key.

* You can specify the key to be initialized by pressing it.

Rhythm Set Initialize

This operation initializes the Rhythm Set currently in the Temporary Area.

● Card

These commands transfer data between the JV - 90 and a DATA card. When you select this command, a display will appear allowing you to select the type of operation.

```
DATA CARD
Int→Card|Card→Int|Int↔Card
```

[Procedure]

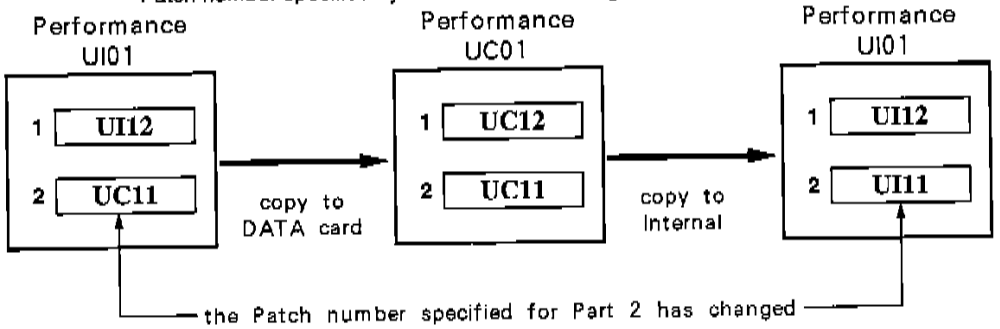
Use [◀]/[▶] or parameter slider 1 to select the desired item (the selected item will blink) and press [ENTER].

Note

The JV - 90 allows you to create Performances which use both internal and DATA card Patches. If you copy such a Performance from internal memory to a DATA card, or from a DATA card to internal memory, you should be aware that the following situation will occur.

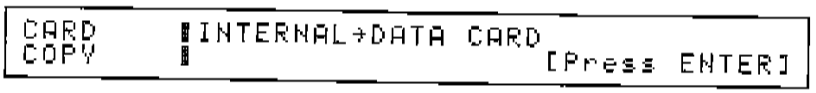
Example : Suppose that there is a Performance UI01 (User Internal 01) which assigns a Patch UI12 to Part 1 and UC11 to Part 2. When this Performance is copied from internal memory to DATA card, this Performance will be stored in the DATA card as "UC01"(User card 01). The Patch assignment for Part 1 will be stored as "UC12" and the Patch assignment for Part 2 will remain UC11.

If you later copy the data from the DATA card back to internal memory, the Performance will be stored in internal memory as "UI01" with Part 1 as "UI12", but Part 2 will be stored as "UI11", meaning that even though the Performance number is the same, the Patch number specified by Part 2 has now changed.



If you wish to save internal data just as it is, use the Bulk Dump command (p.96).

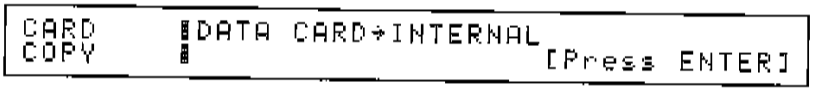
COPY INTERNAL → DATA CARD



This command copies all the Performance, Patch, and Rhythm Set data in internal memory to a DATA card.

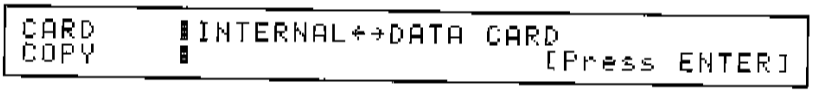
* When this command is executed using a new DATA card (or a DATA card that has been used by another device), the DATA card will be formatted (initialized) for the JV - 90.

COPY DATA CARD → INTERNAL



This command copies all the Performance, Patch, and Rhythm Set data in a DATA card to internal memory.

COPY INTERNAL ←→ DATA CARD



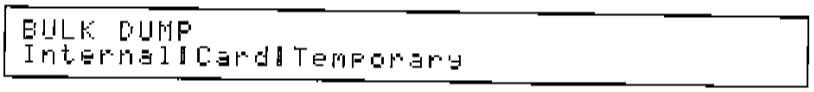
This command exchanges all the Performance, Patch, and Rhythm Set data in a DATA card with the data in internal memory.

● Bulk (bulk dump)

These commands transmit Patch or Tone data from internal memory or the temporary area via MIDI to the sequencer section, or to a MIDI device that is able to store bulk data. In this case, the MIDI channels and device ID number (P.44) of the transmitting and receiving devices must match. (To set the device ID number (P.44), press MIDI and make settings in the SYS - EX MIDI page.)

* Data is transmitted using the "one way" protocol.

When this command is selected, a display will appear allowing you to select the memory from which data is to be transmitted.



[Procedure]

Select the desired item using [◀]/[▶] or parameter slider 1 (the selected item will blink), and press [ENTER].

If you have selected "Temporary", another display will appear allowing you to specify the type of data to be transmitted.

```
BULK DUMP TEMPORARY
Performance Patch Rhythm All
```

Here, too, use [◀]/[▶] or parameter slider 1 to select the desired item (the selected item will blink), and press [ENTER].

When you have specified the data to be transmitted, press [ENTER]. The display will read "Now Sending", and transmission will begin.

After a while the display will read "Complete", indicating that data transmission has ended.

INTERNAL DATA

Internal data

This command transmits all data from the JV - 90 internal memory; Performance, Patch, and Rhythm Set data.

CARD DATA

Card data

This command transmits all data from a DATA card; Performance, Patch, and Rhythm Set data.

PERFORMANCE TEMP

Performance temporary

This command transmits the Performance data from the temporary area.

PATCH TEMP

Patch temporary

This command transmits the Patch data from the temporary area.

RHYTHM TEMP

Rhythm temporary

This command transmits the Rhythm Set data from the temporary area.

ALL TEMP

All temporary

This command transmits the Patch and Rhythm Set data for the Performance in the temporary area.

If the Voice Expansion Board is connected to the JV - 90, the following commands can be used.

INT → V - EXP (Internal → Voice Expansion)

This function can be used to set the VE - GS1 to the actual panel settings. (This may be necessary when the panel settings in the Voice Expansion mode differ from the VE - GS1's actual settings because the V - EXP MIDI IN Selector Switch was set to EXT.)

If, however, the JV - 90 was in the Performance mode before entering the Write mode, this command transfers the Temporary Area in the Performance mode to the VE - JV1. By executing this command, you can play the loaded Performance using the VE - JV1 (rather than the JV - 90's internal sound module).

If the JV - 90 was in the Voice Expansion mode before entering the Write mode, this command transfers the Temporary Area settings in the Voice Expansion mode to the VE - JV1.

You can also use this function to match the VE - JV1 to the settings of the Temporary Area in the Voice Expansion mode when the settings differ because the V - EXP MIDI IN Selector Switch was set to EXT.

V - EXP → INT (Voice Expansion → Internal)

This command transfers the parameter data on the VE - GS1 to the JV - 90. This can be used to match the panel settings to the VE - GS1's settings when the panel settings in the Voice Expansion mode differ (because the V - EXP MIDI IN Selector Switch is set to EXT).

If the JV - 90 was in the Performance mode before entering the Write mode, this command transfers the settings of the VE - JV1 to the Temporary Area in the Performance mode. By executing this command, you can play the loaded Performance on the JV - 90's sound module (rather than on the VE - JV1).

If the JV 90 was in the Voice Expansion mode before entering the Write mode, this command transfers the Parameter data of the VE - JV1 to the Temporary Area in the Voice Expansion mode. You can use this operation to match the VE - JV1 to the setting of the Temporary Area in the Voice Expansion mode when the setting of the VE - JV1 differs from that of the Temporary Area in the Voice Expansion mode.

V - EXP → MIDI (Voice Expansion → MIDI)

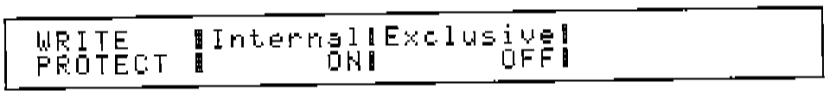
Transfer the Parameter data on the Voice Expansion Board to a sequencer or a MIDI device that can record bulk data.

● Protect

The Internal Protect setting prevents internal memory from accidentally being overwritten.

The Exclusive Protect setting prevents user memory (internal / DATA card) from being overwritten by exclusive data from MIDI IN.

WRITE PROTECT



Internal *Internal protect* ON/OFF

When this is ON, internal memory protect is enabled. If you wish to write Patch or Tone data from the temporary area or from a card into internal memory, this must be set to OFF. When the power is turned on, this setting will be ON.

Exclusive *Exclusive protect* ON/OFF

When this is ON, exclusive protect is enabled. If you wish to overwrite the contents of user memory (internal / DATA card) with exclusive data from MIDI IN, this must be set to OFF. If user memory contains important data, you should set this to ON. When the power is turned on, this setting will be OFF.

* When Exclusive Protect is OFF, exclusive messages will overwrite internal memory even if Internal Protect is ON.

[Procedure]

Use [INC]/[DEC] or parameter sliders 1 or 2 to turn each protect setting ON or OFF.

Chapter 4

USING A VOICE EXPANSION BOARD

1. Using a Voice Expansion Board

Using a Voice Expansion Board

Modes

Voice Expansion Play Mode (P.105, 106)

To select the Voice Expansion Play mode, press the Mode Selection button [V - EXP] and make sure that the indicator is lit. This mode allows you to play the Voice Expansion Board from the JV - 90's keyboard (when the V - EXP MIDI IN Selector Switch is set to INT). The JV - 90 retains the previous mode in memory, which can be determined by the indicator of the relevant Mode Selector button; [PERFORMANCE], [PATCH] or [RHYTHM]. The JV - 90's sound module is played in this mode with the MIDI messages received through MIDI IN.

Voice Expansion Edit Mode (P.113)

To select the Voice Expansion Edit mode, press [EDIT] in the Voice Expansion Play mode. This mode allows you to edit various parameters on the Voice Expansion Board.

Two Types of Voice Expansion Boards

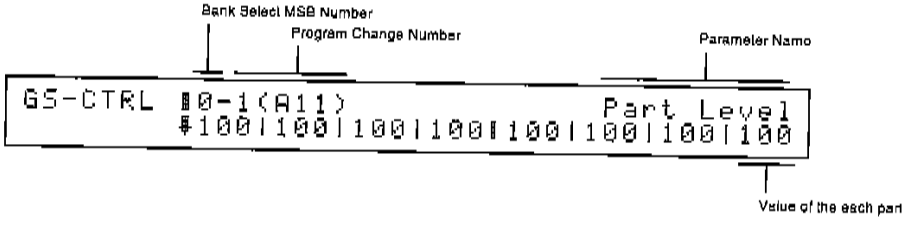
There are two types of Voice Expansion Boards; the VE - GS1 and VE - JV1. JV - 90 operation will depend on which you install.

Structure of the VE - GS1

The VE - GS1 has 16 Parts and one Tone can be assigned to each Part. Part MIDI channels 1 — 16 are available (Page 108).

* When you play the Voice Expansion Board with MIDI, change the position of the V - EXP MIDI IN Selector switch on the rear panel of the JV - 90 (depending on the type of performance you want). (See page 104.)

When a Voice Expansion Board is not installed, pressing [V - EXP] in MODE will cause the screen to show the following display.


Bank Select MSB Number
Program Change Number
Parameter Name
GS-CTRL 0-1(A11) Part Level
#100 100 100 100 100 100 100 100
Value of the each part

If so, the parameters of a Roland GS sound module connected via MIDI can be edited on the JV - 90's screen.

● Structure of the VE - JV1

The VE - JV1 consists of exactly the same structure as the JV - 90's internal sound module when the Performance Mode is set to the factory defaults. It has 7 Parts and 1 Rhythm Part, and a Patch can be assigned to each Part (1 - 7) and a Rhythm Set to the Rhythm Part.

Exactly the same Performance Parameters, Patch Parameters, Rhythm Sets and Waveforms as the JV - 90 are provided in the VE - JV1, and the control channel of the VE - JV1 is set to 16.

The VE - JV1 can also receive/transmit bulk data as System Exclusive messages. Therefore, the performance data edited on the JV - 90 can be transferred to the VE - JV1 as bulk data. (See page 98.)

● VE - GS1 Maximum Polyphony

The VE - GS1 can play up to 28 notes simultaneously. However, depending on the number of voices (*) used for the Tone assigned to the Part, the number of notes to be played simultaneously may be reduced. (Some Tones in VE - GS1 use two voices to create the most realistic result. This, however, reduces the maximum polyphony to 14 notes.)

* To find the number of voices used for the Tones of the VE - GS1, refer to the "Tone List" supplied with the VE - GS1. All the Tones of the JV - 90 use one voice only.

● The VE - GS1's Sound Parameters are Part Parameters

The sound parameters of the VE - GS1 should all be set for a Part. None of them apply to a Tone. That is, if you change the values of a parameter then change Tones assigned to the Part, the edited parameter value will be applied to the new Tone.

● When the value in the screen differs from that on the Voice Expansion Board

If it applies to the following cases, you can change the values indicated in the screen using the buttons or sliders on the JV - 90. This, however, does not change the actual value set on the Voice Expansion Board.

- If you set a parameter when the V - EXP MIDI IN Selector Switch on the rear of the unit is set to EXT

→ Change it to the INT position.

- If you set the parameter in the Part where the Local Control Switch is set to OFF

→ Set the Local Control Switch to ON. (See page 106.)

Either send the data to the Voice Expansion Board using the bulk command in the Write mode, or send the data of the Voice Expansion Board to the JV - 90. (Page 98)

When the GM System On messages are sent to the VE - GS1 (such as when you play the VE - GS1 with GM score data), the VE - GS1 works as a GM sound module. The VE - GS1, however, does not recognize NRPN or Bank(CC0) messages. This may cause some parameters to be unavailable for editing.
If this happens, follow "Resetting the VE - GS1" procedure.

When a Bank Select message whose value is other than 0 is sent to the VE - GS1, the Part that receives the Bank Select message may be muted. If this happens, set an appropriate Bank Select number (or a Program Change number) using the [BANK] and [NUMBER] buttons in a PATCH GROUP.

Resetting the VE - GS1

Press [COMMON] in the Voice Expansion Edit mode, then press [ENTER]. This will reset the VE - GS1 to the original factory settings.

● V - EXP MIDI IN Selector Switch

Ordinarily, set the V - EXP MIDI IN Selector Switch to INT.

When the V - EXP MIDI IN Selector Switch is set to INT, the MIDI messages received at the V - EXP MIDI IN will be ignored.

When the Part on the JV - 90, and that on the Voice Expansion Board are set to the same MIDI receive channel number, two sounds will be mixed. If so, parameters in the JV - 90's sound module and in the Voice Expansion Board may be altered by messages received through MIDI IN.

When should I set the V - EXP MIDI IN Selector Switch to EXT ?

If you wish to use more than 16 Parts in ensemble performances, set the V - EXP MIDI IN Selector Switch to EXT and use both the V - EXP MIDI IN and MIDI IN sockets. Then the Voice Expansion Board ignores any messages received through the MIDI IN Selector Switch and is played with the messages received through the V - EXP MIDI IN Selector Switch to the EXT position, the Voice Expansion Board can be used as a sound module completely separate from the JV - 90.

* When the V - EXP MIDI IN Selector Switch is set to EXT, no sound on the Voice Expansion Board can be played from the JV - 90's keyboard (so, it should be normally set to INT).

* When the V - EXP MIDI IN Selector Switch is set to EXT, pressing V - EXP in the Mode Selector buttons will show the following message in the screen:

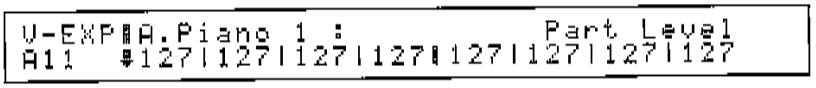
Warning!!

Then it will change to the normal screen of the Voice Expansion Play Mode. Here, no message from the JV - 90 will be transmitted to the Voice Expansion Board and therefore the values edited in the Voice Expansion Edit Mode will not affect the Voice Expansion Board.

2. Using the VE - JV1 Voice Expansion Board

● Select the Voice Expansion Play Mode

Press [V - EXP] in the Mode buttons, and the following display appears showing that the Voice Expansion mode is selected.



● How to select the Part to be played from the keyboard

In the Voice Expansion Play mode, the Part indicated with the cursor can be played from the keyboard. To change Parts to be played, move the cursor with [◀]/[▶].

● How to change sounds in a Part

The upper line of the screen shows the name of the Patch assigned to the Part currently selected. To select a new sound to be assigned to the Part, use the PATCH GROUP button.

Display	Combination of buttons	Patch to be selected	Display	Combination of buttons	Patch to be selected
A	PRESET - A	JV - 90 PRESET A	E	USER - INT	Factory preset data of the JV - 90 USER INTERNAL
B	PRESET - B	JV - 90 PRESET B	F	USER - CARD	Data of PN - JV80 - 04
C	PRESET - C	JV - 90 PRESET C	G	USER - PCM - A	Compatible data of JV - 80 PRESET A
D	PRESET - D	JV - 90 PRESET D	H	USER - PCM - B	Compatible data of JV - 80 PRESET B

* No data can be stored in the USER INTERNAL or USER CARD area on the VE - JV1.

* PN - JV80 - 04 "RICH SOUND COLLECTION 2".

● How to edit the Sound Parameters of the VE - JV1

Select the sound parameter to be edited by pressing the relevant button in the EDIT PALETTE, then change the value on the screen of the JV - 90. You can change values in the same way as with the VE - GS1 explained on page 108. The contents of the parameters are exactly the same as the JV - 90's sound module. (Page 48)

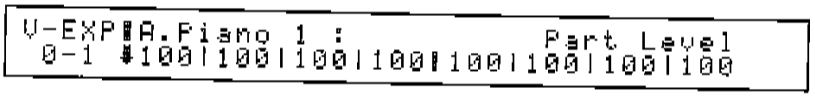
* If you wish to set all the parameters on the VE - JV1 to the same values as the JV - 90, select the Write Mode, then transfer all the data to the VE - JV1. (Page 98)

* You can change the envelope of the Tone on the VE - JV1 by pressing [TVF/TVA] in the Voice Expansion mode. The envelopes of all four Tones, however, will be changed relatively.

3. Using the VE - GS1 Voice Expansion Board

● Select the Voice Expansion Play Mode

Press [V - EXP] in Mode buttons, and the following display appears showing that the Voice Expansion Play mode is selected.



● How to select the Part to be played from the keyboard

In the Voice Expansion Play mode, the Part indicated with the cursor can be played from the keyboard. To change Parts to be played, move the cursor with [◀]/[▶] to the relevant Part. The screen shows the name of the sound of the Part as well as the GS Bank Number and the Program Number.

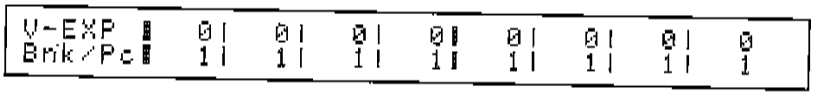
To play a Part 1—8, press [PART SEL(1—8)] in the EDIT PALETTE and make sure that the indicator is lit. To play a Part from 9—16, press [PART SEL(9—16)].

● Part On/Off(play/mute)

When you play a Part with messages received through MIDI IN, you can turn on (play) or turn off (mute) each Part. When the indicator of the PART SWITCH buttons is lit, the corresponding Part is turned on and therefore will sound. If the indicator is dark, the Part is muted. Pressing the PART SWITCH buttons turns on or off the Part. To turn Parts 9—16 on/off, press [PART SEL(9—16)] and turn on the indicator. To set a Part of 1—8, press [PART SEL(1—8)].

● How to change sounds in a Part

To change the sound assigned to a Part, press [PATCH] in the EDIT PALETTE and call the following display.



The upper line of the display shows the GS Bank Number and the lower line shows the Program Number. To select a sound on the VE - GS1, use the GS Bank Number and Program Number. When the indicator of [PART SEL(1—8)] in the EDIT PALETTE is lit, the screen shows the Bank Numbers and Program Numbers of Parts 1—8 from left to right. When the indicator of [PART SEL(9—16)] is lit, the screen shows the Bank Numbers and Program Numbers of Parts 9—16.

How to set the Program Numbers

There are three different methods for setting Program Numbers:

1. Move the cursor to the Part where you wish to change sounds using [PART SEL] in the EDIT PALETTE and [◀]/[▶], then set the number with the Parameter Slider that corresponds to the Part number.

2. Move the cursor to the relevant Part with [◀]/[▶], then set the number with [INC]/[DEC].

3. Move the cursor to the relevant Part with [◀]/[▶], then specify the Patch Number using V - EXP - [A][B] in the PATCH GROUP buttons and BANK/NUMBER buttons. When you use V - EXP - [A], you can set a Patch Number of 1—64 with BANK/NUMBER buttons, and when you use V - EXP - [B], you can set numbers 65—128.

* Setting a Patch Number with the Parameter Sliders or [INC]/[DEC] will affect the Indicators of BANK and NUMBER buttons in the PATCH GROUP.

How to set the GS Bank Number

To specify a Bank number, move the cursor to the Part where you wish to change Bank numbers using [◀]/[▶]. Then press V - EXP - [BANK LO] in the PATCH GROUP buttons to set a GS Bank number of 0—63, and V - EXP - [BANK HI] to set a GS Bank number of 64—128.

Specify the Bank number as described in "How to set the Program Numbers" (step 1, 2 or 3).

How to set the Rhythm Set

To assign a Rhythm Set to a Part, move the cursor to the Part where you wish to set the Rhythm Set using [◀]/[▶]. Press [V - EXP RHY] in the PATCH GROUP buttons. Select the Rhythm Set to be assigned with BANK and NUMBER buttons. The screen now shows the Program Number of the selected Rhythm Set. At the Part where the Rhythm Set is assigned, "R" is shown instead of the Bank Number.

* You can assign Rhythm Sets to a maximum of 2 Parts.

* Part 10 has been factory - designated as the Rhythm Part.

● How to edit the sound parameters of the VE - GS 1

Press the relevant buttons in the EDIT PALETTE to select a sound parameter to be edited, then edit the value on the JV - 90's screen. Press [PART SEL(9 - 16)] and make sure that the indicator is lit, and you can edit the parameters in Parts 9 — 16. To edit the parameters in Parts 1 — 8, press [PART SEL (1 — 8)]. You can change the values of a parameter using the Parameter Slider that corresponds to the Part Number. You can also edit a parameter using the buttons in FUNCTION.

* Pressing [▲]/[▼] in the screen of " ↑ " or " ↓ " will select pages of other parameters.

The following shows the parameters that can be edited

Parameters that can be edited by using buttons in EDIT PALETTE.

Parameters that can be selected by pressing [LEVEL]:

Part Level 0—127

This adjusts the volume balance of each Part.

Press [LEVEL], then the following parameters can be selected with [▼].

Voice Reserve 0—28 (Page 76)

This sets the minimum number of voices that should be retained for each Part.

* The maximum number of voices played on the VE - GS1 is 28. Be sure that the total number of voices for all Parts is less than 28.

Part MIDI Channel

This sets the receive channel of a Part and the MIDI transmit channel of the JV - 90's keyboard (in the Voice Expansion Mode).

Parameter that can be selected by pressing [PAN]:

Part Pan L64—0—63R/RND

This adjusts the sound position (within the stereo positioning) of each Part.

* In some Patches, a small amount of sound may be heard from the opposite speaker even with pan settings of full left (or right).

* In the Rhythm Set, the Pan is set for each Rhythm Tone. That is, if you change the pan setting of a Part where the Rhythm Set is assigned, the sound position of the entire Rhythm Set will move.

* When the Part Pan is set to 63R, pressing [INC] will select "RND" that moves the sound positions to the right and left at random.

Parameter that can be selected by pressing [TUNE]:

Part Coarse Tune -24—+24

This adjusts the pitch of each Part in semi - tone steps.

When [TUNE] is pressed, the following parameter can be selected with [DOWN].

Part Fine Tune -50 -+50

This adjusts the pitch of each Part in steps of 1/100 of a semi - tone.

Parameter that can be called by pressing [PATCH]:

Patch Select

This specifies the Tone and Rhythm Set assigned to each Part. The upper line of the screen shows the Bank Number of the Tone and the lower line shows the Program Number.

Parameters that can be selected by pressing [TVF/TVA]:

TVF Cutoff Freq. -50—+50

This controls the cutoff frequencies of the TVF.

When [TVF/TVA] is pressed, the following parameters can be selected with [▲]/[▼].

TVF Resonance -50—+50

This controls how the harmonics around the cutoff frequency will be emphasized.

TVF - TVA Env Attack -50—+50

This controls the time needed for the volume and cutoff frequency to reach a certain level.

TVF - TVA Env Decay -50—+50

This determines the time needed for the sound to reach the sustain level after the attack time has elapsed.

TVF - TVA Env Release -50—+50

This determines the time needed for the sound to fall to the minimum level.

Parameter that can be selected by pressing [REVERB]:

Reverb Send Level 0—127

This adjusts the depth of the reverb effect.

Parameter that can be selected by pressing [CHORUS]:

Chorus Send Level 0—127

This adjusts the depth of the chorus effect.

Parameters that can be called by pressing [VIBRATO]:

Vibrato Rate -50—+50

This controls the rate of the vibrato effect.

When [VIBRATO] is pressed, the following parameters can be selected with [▲]/[▼].

Vibrato Depth −50—+50

This controls the depth of the vibrato effect.

Vibrato Delay −50—+50

This determines the time needed for the vibrato effect to start working.

Parameters that can be edited by pressing buttons in FUNCTION:

* What you set here will be common to all the Parts.

Parameters that can be selected by pressing [EFFECT]:

Reverb Type

Chorus Type

These allow you to select a reverb and a chorus you like from 8 different types for each.

<Reverb Types>

Rooms 1 - 3	Sharp and spacious reverberations are obtained.
Halls 1 and 2	Longer and deeper reverbs than those provided by the Room settings.
Plate	This simulates a plate echo (the reverb that uses the vibrations on a metal plate).
Delay	A conventional delay effect.
Panning Delay	Special delay where the sound moves to the right and left. Especially effective with a stereo output.

<Chorus Types>

Choruses 1 - 4	These are standard chorus effects.
Feedback Chorus	A chorus that creates a flanger - like effect. This makes the sound softer.
Flanger	Creates the sonic illusion of a jet plane ascending and descending.
Short Delay	A delay with a short delay time.
Short Delay (FB)	Short delays repeated many times.

Parameters that can be selected by pressing [PGM CHANGE]:

Tx - Ch *(Transmit Channel)* 1—16

This sets the MIDI channel on which the Program Change messages are transmitted.

P.C - No *(Program Number)* 001/All—128/B88

This selects the Program Number to be transmitted on the Tx - Ch.

The screen shows the Program Change number in the form of "Program Number/Group - Bank - Number". The indicators of PATCH GROUP BANK and NUMBER button will light according to the selected Program Number.

* When the cursor is at the position of a Program Number, you can set the Number directly using numbers (1—128). BANK [1]—[8] corresponds to 1—8, and NUMBER [1] and [2] correspond to 9 and 0. Simply enter the Program Number you wish then press [ENTER] and it will be transmitted.

When the cursor is at the position of Group/Bank/Number, you can specify the Program Change Number using PATCH GROUP/BANK/NUMBER.

Bnk - MSB/Bnk - LSB *(GS Bank Number)* 000—127 each

These set the MSB (the value of Control Change 0) and LSB (the value of Control Change 32) of the GS Bank Number to be transmitted on the Tx - Ch.

* The Bank Number will be sent together with the Program Number when [ENTER] is pressed.

Parameters that can be selected by pressing [TUNE]:

Tune *(Master Tune)* 415.3—466.2Hz

This controls the pitch of the Voice Expansion Board. The values are the frequencies of the A4 key.

Transpose ON/OFF -36—+36

This transposes the performance information (in semi - tone steps) sent from the keyboard controller to the Voice Expansion Board. The left side of " | " determines whether to use the Transpose function (ON) or not (OFF), while the right side of " | " sets the amount of transposition.

LCD *(LCD Contrast)* 0—10

This adjusts the contrast of the display.

JV - LEVEL *(JV Master Level)* 0—127

This adjusts the overall output level of the internal sound module.

EX - LEVEL *(V - EXP Master Level)* 0—127

This adjusts the volume level of the Voice Expansion Board. The value you set here will be invalid if the V - EXP MIDI IN Selector on the rear of the JV - 90 is set to EXT.

Key - Shift *(Master Key Shift)* -24—+24

This shifts the pitch of the Voice Expansion Board in semi - tone steps.

Pan *(Master Pan)* L63—0—R63

This adjusts the overall pan setting (sound position) for the output of the Voice Expansion Board.

Parameters that can be selected by pressing [CONTROL]:

You can control the parameters assigned to foot pedals 1 and 2 connected to the Pedal Jacks 1 and 2, and the C1 slider.

Mode *(Output Mode)* OFF/INT/MIDI/I+M

This determines which sound module (MIDI device) should be controlled with the pedals or the C1 slider. The INT mode sends the messages only to the VE - GS1. The MIDI mode sends messages to only the MIDI OUT on the rear of the unit. In the I+M mode, messages are sent to both the VE - GS1 and MIDI OUT. When it is set to OFF, neither the VE - GS1 or external MIDI device can be controlled using the slider or pedals.

Assign CC0—CC95/AFTERTOUCH/BEND - UP/BEND - DOWN/PROG - UP/PROG - DOWN

This determines the parameter to be controlled with the pedal or C1 slider. When CC0—CC95 is selected, the value of MIDI Control Change number 0—95 is affected. When AFTERTOUCH is selected, the value of Aftertouch is affected. When BEND - UP/BEND - DOWN is selected, the up and down value of the Pitch Bend is affected. When PROG - UP/PROG - DOWN is selected, the value of the Program Number increases or decreases. The value shown in the screen ( ) represents the current value of the pedal/C1 slider.

STANDARD/REVERSE for Pedal 1, Pedal 2 and Hold

This selects Standard or Reverse polarity for the JV - 90 in accordance with the polarity of the pedal switch connected to the Pedal Jack 1/2 or Hold Pedal Jack. When you use a Roland Pedal Switch (e.g. DP - 2), set polarity to STANDARD.

When you use a pedal switch that has opposite polarity (*), set to REVERSE.

* Switch polarity may be the problem when the sound is sustained, even without pressing the pedal, when a pedal is connected to the Hold Pedal Jack.

Thresh *(Threshold Level)* 0 - 127

This sets the threshold level where the aftertouch effect starts working. That is, the aftertouch effect does not work unless the aftertouch value exceeds the threshold level. When the Threshold is set to 127, no aftertouch effect can be obtained.

Parameters that can be selected by pressing [MIDI]:

Move the cursor to any Part you like then press MIDI, and you can select the parameter setting display for MIDI in that Part.

This selects whether to send each MIDI message (ON) or not (OFF).

The MIDI messages are:

P.C. : *Program Change*

C.C. : *Control Change*

Vol : *Volume*

Bend : *Pitch Bender*

Mod : *Modulation*

Aft : *Aftertouch*

When [RX PART SWITCH] is pressed :

This selects whether or not to recognize the MIDI messages received through MIDI IN for each Part in JV - 90's internal sound module or Voice Expansion Board. Move the cursor with [◀]/[▶] to select a Part, then select 1 or 0 with [INC]/[DEC] (1 is to recognize and 0 is to ignore). The Part where 0 is set will be muted.

* When the JV - 90 is set to the Performance Mode, changing the value also changes the MIDI Receive Switch (Page 32) automatically.

* When the JV - 90 is set to the Patch mode, the Part of the Voice Expansion Board (Page 42) that has the same receive channel as the receive channel (Page 108) of the Patch is shown with an arrow " ↓ ".

* When the V - EXP MIDI IN Selector Switch is set to EXT, the Voice Expansion Board will be played with the MIDI messages received on the V - EXP MIDI IN. The MIDI messages received through MIDI IN, however, will be ignored by the Voice Expansion Board. (Page 104)

Parameters that can be edited by pressing [EDIT] In FUNCTION:

To edit parameters in a specified Part, move the cursor to the relevant Part in the Voice Expansion Play mode, then press [EDIT] in FUNCTION (Voice Expansion Edit Mode). In the Voice Expansion Edit mode, you can select the desired parameter by pressing the corresponding FUNCTION button.

● Other Editing Procedures

Parameters that can be selected by pressing [CONTROL]

Assign *(Key Assign)* POLY/MONO

This selects whether to play each Part polyphonically (POLY) or monophonically (MONO).

Bend Range *(Bender Range)* 0—24

This sets the maximum level of the pitch change caused by the pitch bend lever. It can be set up to 2 octaves in semi tone steps.

Mod - Depth *(Modulation Depth)* 0—127

This sets the depth of the modulation (e.g. vibrato effect) caused by the modulation lever.

DEPTH *Velocity sensitivity depth* 0—127

As the Velocity Sensitivity Depth is increased, changes in playing dynamics will have a greater effect on volume. With a setting of 0, playing dynamics will have no effect on volume.

OFFSET *Velocity sensitivity offset* 0—127

This parameter determines the velocity at which volume changes will result. As this setting is increased above 64, the volume will change for softly played notes. As this setting is decreased below 64, the volume will change for strongly played notes.

Parameters that can be selected by pressing [TVA/TVF]

TVF Cutoff Freq. *(TVF Cutoff Frequency)* -50—+50

This determines the cutoff frequency (that cuts off the harmonics in a sound).

TVF Resonance -50—+50

This sets how much the harmonics around the cutoff frequency will be emphasized.

TVF - TVA Attack *(Envelope Attack)* -50—+50

This determines the time needed for the volume and cutoff frequency to reach a certain level.

TVF - TVA Decay *(Envelope Decay)* -50—+50

This determines the time needed for the sound to reach the sustain level.

TVF - TVA Release *(Envelope Release)* -50—+50

This determines the time needed for the sound to fade away.

Parameters that can be selected by pressing [PITCH]:

Coarse Tune *(Part Coarse Tune)* -24—+24

This adjusts the pitch of each Part in semi - tone steps.

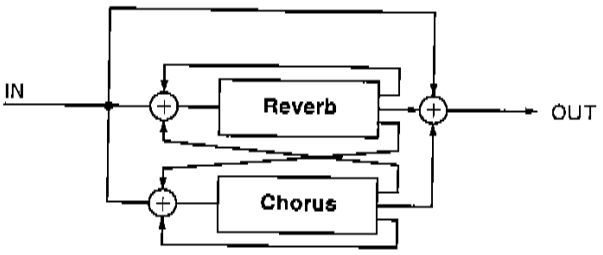
Fine Tune *(Part Fine Tune)* -100—+100

This adjusts the pitch of each Part in steps of 1/100 of a semi - tone.

Parameters accessed by [EFFECT]

These are the parameters related to chorus and reverb. Chorus and reverb give depth to the sound or create a spacious stereo effect.

* The effect unit settings of VE - GS1 are common to all Parts. The depth of the effect for each Part will depend on the Chorus/Reverb Send Level parameters (P.109), which are set independently for each Part.



U-EXP	CHR	LPF	LVL	TIM	FB	SEN		
REVERB	4	0	40	40	0	0	---	---

CHR *Reverb character* 0—7

This parameter determines the type of reverb.

LPF *Reverb pre LPF* 0—7

This parameter sets the LPF (low pass filter) placed before the reverb.

LVL *Reverb level* 0—127

This parameter sets the level (volume) of the reverberant sound.

TIM *Reverb time* 0—127

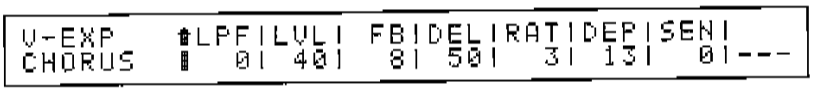
When the reverb type is ROOM1—PLATE, this parameter sets the reverb time. When the reverb type is DELAY/PAN - DELAY, this parameter sets the delay time.

FB *Delay feedback* 0—127

When the reverb type is DELAY, this parameter sets the level at which the delayed sound is fed back into the delay.

SEN *Reverb send level* 0—127

This parameter sets the level at which the reverb output is sent to the chorus.



LPF *Chorus pre LPF* 0—7

This parameter sets the LPF (low pass filter) placed before the chorus.

LVL *Chorus level* 0—127

This parameter sets the level (volume) of the chorused sound.

FB *Chorus feedback* 0—127

This parameter sets the level at which the chorused sound is fed back into the chorus.

DEL *Chorus delay* 0—127

This parameter sets the delay time.

RAT *Chorus rate* 0—127

This parameter sets the modulation speed of the chorus.

DEP *Chorus depth* 0—127

This parameter sets the modulation depth of the chorus.

SEN *Chorus send level* 0—127

This parameter sets the level at which the chorus output is sent to the reverb.

Chapter 5

REFERENCE

1. Error Messages

When operations have been incorrectly executed, or when some unexpected condition arises, an error message will be displayed. Check the displayed error message and implement the suggested solution (or solutions) in this section.
All the messages listed below are displayed for about 1.5 seconds, after which the screen returns to the previous display.

● Internal RAM Write Protect

Problem: The internal memory write-protect function is on and data cannot be written or stored.
Solution: After this message is displayed, the screen automatically switches to the write-protect display. Set the Internal protect function to OFF from this display.

● Internal RAM Read Error

Problem: The data of the internal memory has somehow been destroyed.
Solution: Consult with your nearest Roland Service Station.

● Internal Battery Low

Problem: The internal backup battery has run down.
Solution: Consult with your nearest Roland Service Station.

● DATA Card Not Ready

Problem: The DATA card has not been inserted into the DATA card slot or has not been inserted correctly.
Solution: Insert the DATA card correctly and securely.

● DATA Card Not Properly Formatted

Problem: The DATA card inserted has not been properly formatted for use with the JV-90 or JV-80 series.
Solution: Format the card from the Write mode (P.95).

● DATA Card Write Protect

Problem: The protect switch of the DATA card is on and data cannot be stored on the card.
Solution: Set the protect switch of the DATA card to off (P.88), then perform the desired operation again.

● DATA Card Read Error

Problem: The data of the DATA card has somehow been destroyed.
Solution: Consult with your nearest Roland Service Station.

● DATA Card Battery Low

Problem: The DATA card backup battery has run down.
Solution: Transfer the data to another DATA card, then replace the battery in the original card.

● PCM Card Not Ready

Problem: The PCM card has not been inserted into the PCM card slot or has not been inserted correctly.
Solution: Insert the PCM card correctly and securely.

● PCM Card Not Properly Formatted

Problem: A PCM card not designed for use with the JV-90 has been inserted into the PCM card slot.
Solution: Use only a proper PCM card.

● MIDI Communication Error

Problem: Either an excessive amount of data was received at once, or the active sensing function was cut off.
Solution: Do not attempt to continuously transmit large amounts of data (like program change messages) that require processing on reception and, hence, take more time than usual. Also make sure that all MIDI cables are connected correctly.

● BULK DUMP: MIDI Buffer Full

Problem: Excessive data has been transmitted at once by the bulk dump function.

Solution: Make adjustments to the exclusive data so that it is sent in several "packets" of smaller amounts.

● BULK DUMP: Check Sum Error

Problem: The checksum value of the bulk dump is incorrect.

Solution: Correct the exclusive data.

● BULK DUMP: DATA Card Not Ready

Problem: A DATA card has not been inserted and the data received by the bulk dump function cannot be written or stored.

Solution: Insert a DATA card correctly and securely into the DATA card slot.

● BULK DUMP: Improper DATA Card

Problem: A DATA card not properly formatted for use with the JV-90 or JV-80 series has been inserted and the data received by bulk dump cannot be written or stored.

Solution: After formatting the DATA card from the Write mode (P.95), perform the operation again.

● BULK DUMP: DATA Card Write Protect

Problem: The protect switch of the DATA card is on and data received during execution of the bulk dump function could not be written or stored.

Solution: Set the protect switch of the DATA card to off (P.88), then perform the operation again.

● Warning !! V-EXP Parameters Would Be Ignored.

Problem: You cannot play or edit the Voice Expansion Board in the V-EXP mode because the V-EXP Selector Switch is set to the EXT position.

Solution: If you wish to play or edit in the V-EXP mode, change the V-EXP MIDI IN Selector Switch to the INT position.

● Please Set V-EXP MIDI IN Selector INT.

Problem: You cannot transfer data between the JV-90 and the Voice Expansion Board because V-EXP MIDI IN Selector Switch is set to the EXT position.

Solution: Set the V-EXP MIDI IN Selector Switch to the INT position.

2. Troubleshooting

Check through the following situations and conditions when your JV-90 fails to operate properly.

Synthesizer Sound Module

■ No sound

- Check that the JV-90, amplifier and mixer are all turned on.
- Check that all the devices are connected correctly and securely.
- Check that the connecting cables are not defective.
- Check whether the sound is output through a connected set of headphones. If you can hear the sound normally through the headphones, the connected device or cable are probably the cause of the problem.
- Check that the volume of the amplifier, mixer or external MIDI sound source are set to suitable levels.
- Check that the volume of JV-90 is set to a suitable level.

For the internal sound source, check the following:

- ○ The position of the master volume
- ○ The internal level value which isee for each part of a Performance
- ○ The Part level value which is set for the Part of a Performance
- ○ The Patch level value which is set for a Patch
- ○ TVA level value which is set for the Tone of a Patch or a Rhythm Tone
- ○ The position of the pedal or slider when CC7/VOLUME is assigned to Pedal 1/2 or C1
- ○ The value of the volume data received via MIDI IN

For connected Sythesizer MIDI devices, check the following:

- ○ The transmit volume setting which is made for the transmit zone of a Performance
- ○ The position of the pedal or slider when CC7/VOLUME is assigned to Pedal 1/2 or C1

- Check that the local switch is OFF:

- ○ The setting of the local switch in the system common parameters
- ○ The setting of the local switch which is set for the internal zone of a Performance
- ○ When the Key Mode is set to Single, only the Part indicated with the cursor willl be played. That is, no other Part cannot be played by the Keyboard even if the Local Switch is set to ON.

- Check that the receive switch which is set for the Part of a Performance is on.
- Check that the transmit switch which is set for the transmit zone of a Performance is on.
- Check that the Patch transmit channel of the system parameters is on.
- Check that the Tone switch which is set for the Tone of a Patch is on.
- Check that the range of the zone has been properly set:

- ○ The key range value which is set for the transmit or internal zone, when the key mode of the Performance is set to zone
- ○ Some Data Coard on the market have the Keyboard range varying from C2 to C7.

- Check that the MIDI channel has been set properly:

- ○ The Patch transmit/receive channel value which is set in the system commom parameters
- ○ Transmit channel value which is set by the transmit zone of the Performance
- ○ Receive channel value which is set for the Part of a Performance

- Sound may not be produced if: 1) the cutoff is set to 0 and the TVF filter type for the Tone of a Patch or a Rhythm Tone is set to LPF, or 2) the cutoff is set to 127 and the filter type is set to HPF.

Check the following:

- ○ TVF cutoff value
- ○ TVF envelope depth
- ○ The velocity sensitivity value and the key follow setting of the TVF envelope
- ○ The level setting of TVF envelope
- ○ The depth setting and the controller position when the modulation/aftertouch/expression control parameter is set to cutoff
- ○ The value of Velocity Range when the Velocity Switch of the Patch is set to ON.

● Check that the TVA level of the Patch Tone or Rhythm Tone is set to 0.

Check the following:
- ○ Dry level value which is set by the effect send
- ○ TVA level value
- ○ The velocity sensitivity value and the key follow setting of the TVA envelope
- ○ The level setting of TVA envelope
- ○ The depth setting and the controller position when the modulation/aftertouch/expression control parameter is set to level
- ○ The Tone delay time value
- ○ The value of Velocity Range when the Velocity Switch of the Patch is set to ON.

● The sound range may be limited depending on the wave selected.

Check the following:
- ○ Transpose value of the system common parameters
- ○ Transpose value which is set for the internal zone of a Performance
- ○ Coarse tune value which is set for the Part of a Performance
- ○ Coarse tune value which is set for the Tone of a Patch
- ○ Coarse tune value which is set for the Rhythm Tone

■ Volume cannot be controlled

● Check that either pedal 1/2 or C1 is assigned to CC7/VOLUME.

● Check that the receiving switch for the volume is not off.

Check the following:
- ○ The receive volume setting which is set by MIDI receive in the system common parameters
- ○ The receive volume setting which is set for the Part of a Performance
- ○ The volume setting which is set for the pedal of the Patch Tone

● The volume is not transmitted even though the value of the transmit volume of the transmit zone is changed in the Performance Edit mode.

■Dynamic changes in the sound do not respond correctly or as you expect them to

● Check the velocity sensitivity settings:

- ○ The value of the velocity curve/sensitivity and maximum velocity, which are set in transmit/internal zone of the Performance
- ○ The value of the TVA velocity curve/sensitivity, which are set for the Rhythm Tone of a Patch.

■ The sound is distorted

● Check the levels of the amplifier and mixer and the master volume of the JV-90 are set properly.

● When the Part level parameter of a Performance is set too high, the sound sometimes may be distorted.

● When the TVA level or the resonance value set for a Patch Tone or Rhythm Tone is set too high, the sound sometimes may be distorted.

■The pitch is wrong or does not change

● Check that the tune settings are correct:

- ○ The master tune/transpose values of the system parameters
- ○ The transpose value set for the internal zone of a Performance
- ○ The coarse tune/fine tune values set for the Part of a Performance
- ○ The coarse tune/fine tune/random pitch values set for the Tone of a Patch or a Rhythm Tone
- ○ The pitch key follow value set for the Tone of a Patch
- ○ The pitch envelope value set for the Tone of a Patch or a Rhythm Tone
- ○ The tuning value of the external MIDI sound source
- ○ The setting of the Scale Tune.

● Check that the pitch bender has not been moved

Check the following:
- ○ The position of the bender lever
- ○ The position of pedals 1/2 and C1 when the assignment of pedal 1/2 and C1 are set to BEND-UP/BEND-DOWN
- ○ The pitch bend value received via MIDI IN
- ○ The bender range value which is set for the Patch
- ○ The bender range value which is set for the Rhythm Tone
- ○ The bender range value of the external MIDI sound source

● Check that the receiving switch of the pitch bender is OFF.

Check the following:
- ○ The bender setting which is set by the transmit/receive MIDI functions of the system common parameters
- ○ The bender range value which is set for the Patch
- ○ The bender range value which is set for the Rhythm Tone
- ○ The bender range value/receiving switch of the external MIDI sound source

● Check that the effects and LFO are correctly set

Check the following:

○ The chorus value which is set for the Performance/Patch
○ The analog feel value which is set for the Patch
○ The switch/depth value of FXM which is set for the Tone of a Patch
○ The pitch LFO depth value which is set for the Tone of a Patch
○ The depth value and the controller position of the modulation/ aftertouch/expression control which is set for the Tone of a Patch, when the parameter is set to pitch LFO

● It may happen that the sounding pitch range is limited, or that a Tone doesn't deviate from a certain pitch range, or that the tuning sounds off, depending on the selected wave.

■ The controllers do not work

● Check the mode/assign settings of pedals 1/2 and C1, which are set in the system common parameters.

● Check the transmission/receiving switch of the controller.

Check the following:

○ The MIDI transmit/receive settings made in the system common parameters
○ The receive volume/hold 1 settings made for the Part of a Performance
○ The volume/hold 1 settings made for the pedal of the Tone of a Patch

● Check the modulation/aftertouch/expression control settings made for the Tone of a Patch. The effect is not applied when the parameter is set to off or the depth is set to 0.

● The Theshold Level of the Aftertouch should be set to an appropriate value. If it is set to 127 no aftertouch effect can be obtained.

■The sound color does not change or program change messages are not sent

● Check that the switches which allow sending and receiving of program change messages are not set to OFF:

○ The program change setting for MIDI transmit/receive which is set in the system common parameters
○ The transmit program change value which is set for the transmit zone of a Performance
○ The receive program change value which is set for the Part of a Performance

● Check that the MIDI channel settings are correct:

○ The control channel value which is set in the system common parameters
○ The Patch transmit/receive channel value which is set in the system common parameters
○ The transmit channel value which is set for the transmit zone of a Performance
○ The receive channel value which is set for the Part of a Performance

● The layer/zone key mode and the single key mode of a Performance may have different settings for the program change to be transmitted and the MIDI channel.

● When the Patch select display is selected in the Performance Play mode, the Performance cannot be changed.

● Check that the Edit mode has not been selected:

○ Changing Performances or receiving program changes is not possible in the Performance Edit mode.
○ Changing Patches or receiving program changes is not possible in the Patch Edit mode.
○ Changing Rhythms or receiving program changes is not possible in the Rhythm Edit mode.
○ From the Performance Edit mode, program change messages cannot be transmitted even though the value of the transmit program change of the transmit zone has been changed.

■ The effects do not work

● Check that the effect switch is on:

○The chorus/reverb switch on the front panel
○The chorus/reverb switch setting which is made for the Part of a Performance

● Check that the setting of the Performance and the effect of a Patch have been made correctly. The effect is not applied when the chorus/reverb level is set to 0.

- Check that the setting of the Patch and Rhythm Tone have been made correctly. The effect is not applied when the chorus/reverb send, which is set by the effect send parameter, is set to 0.

Portamento does not work

- Check that the portamento switch, which is set for the Patch, is on.
- When the portamento mode for the Patch is set to legato, portamento is not applied unless you actually play the keyboard with legato technique; that is, holding down one key and not releasing it until after the next key has been pressed.
- Portamento is not applied to Rhythm Tones.

The sound is muted

- The maximum Polyphony of the JV-90 is twenty-eight. Decrease the number of Tones you are using or adjust the Partial reserve.
- When the key assign parameter of the Patch is set to solo, only a single Tone sounds even when several keys are played.
- If the mute group of a Rhythm Tone is on, the sound which has been sounding is muted when another sound from the same group is played.

The Tone of a Patch cannot be edited as intended

- Check that the condition of the Tone select and the Tone number to be edited match.
- The sound doesn't change when editing a Tone whose Tone switch has been turned off.

The Rhythm cannot be edited as intended

- Check that the key which is being edited and the sounding key match. The key to be edited isn't affected by the note data received via MIDI IN.
- No sound results when editing a Tone whose Tone switch has been turned off.

Card cannot be used

- Cards which have not been formatted for use with the JV-90 or JV-80 series cannot be used. Format the DATA card by transferring the internal data to the card (the card will automatically be formatted).
- PCM cards which have not been designed for use with the JV-90 or JV-80 series cannot be used.

Data cannot be transferred by MIDI exclusive messages

- Check that the receive exclusive switch, which is set in the system common parameters, is OFF.
- Check that the unit number, which is set in the system common parameters, is correct. Match it to the unit number of the connected device.
- The temporary data will not be changed, even though the data is transferred by exclusive messages to internal memory or DATA card. Transfer to the temporary area or switch the Performance/Patch by program change after transferring the data by exclusive message.
- Check that a DATA card has been inserted. Data cannot be stored on the DATA card if it has not been properly inserted.
- Check that the DATA card has been formatted for use with the JV-90 or JV-80 series. Data cannot be stored on the DATA card if it has not been properly formatted for the JV-90 or JV-80 series.
- Check that the write-protect switch is ON. When transferring data to either the internal memory or DATA card, the data cannot be written unless the corresponding write-protect switch is set to off.

Voice Expansion Board

■ No sound is heard

● Check if the volume is set too low.

○ Check the position of the Master Volume.
○ Check the value of the Part Level.
○ Check the positions of the pedal and slider when CC7/VOLUME are assigned to Pedal 1/2 and C1.
○ Check the value of the Volume information from the MIDI IN.
○ Check if the level of the V-EXP system common parameter is set too low.

● Check if the MIDI Receive switch is turned to OFF.

● Check if the Receive Volume set with the Receive MIDI is turned OFF.

● When the Cutoff is set to −50, no sound may be heard.

● Check the setting of the Velocity Sens.

○ Check the value of the Velocity Sens Depth.
○ Check the value of the Velocity Sens Offset.

● Some Patches or Rhythm Sets have limited sound range to be played.

○ Check the Transpose value of the V-EXP system common parameter.
○ Check the value of the Coarse Tune.

● Check if you have selected the Bank where no Patch is assigned.

■ Pitch is strange/Pitch does not change

● Check if the Tune is correctly set.

○ Check the values of the Master Tune/Transpose of the V-EXP system common parameters.
○ Check the values of Coarse Tune/Fine Tune.

● Check if the Pitch Bender has been operated.

○ Check the positions of the Pedal 1/2 and C1 when the Pedal 1/2 and C1 assignment is BEND-UP/BEND-DOWN.
○ Check the value of the Bender Range.

● Check if the Receive Switch of the Pitch Bender is set to OFF.

○ Check if the Bender's receive switch set with the Receive MIDI is turned OFF.

● Check if the Effect or Vibrato is correctly set.

○ Check the value of the Chorus Depth.
○ Check the value of the Vibrato Depth.
○ Check the value of the Modulation Depth.

● Owing to the nature of the Wave, it may happen that the pitch is strange or does not change at all in a certain sound range.

■ You cannot call a Patch to be assigned to a Part.

● Check if the MIDI Receive switch is set to OFF.

● Check if the receive switch of the Program Change set with the Receive MIDI is turned to OFF.

● Check if you have selected the Bank where no Patch is assigned.

● The Voice Expansion Edit mode does not allow you to change Patches.

■ No effect is obtained

- Check if the Chorus/Reverb Switch on the front panel of the unit is turned ON.
- Check if the effect is correctly set.

○ Check the value of the Chorus/Reverb Send Depth.
○ Check the value of the Chorus/Reverb Level.

■ Missing sounds

- The maximum number of voices to be simultaneously played on the expansion sound module is 28. If it exceeds 28 voices, adjust the settings of the Voice Reserve.
- When the Key Assign is set to MONO, only a single note will be played even with more than one Key On.

■ You cannot edit data properly

- When the unit receives the GM System On from MIDI after it is being switched on, some parameters can no longer be edited. If this happens, reset the expansion sound module.
- You cannot edit the Part where the MIDI Receive Switch is set to OFF.
- Check if the Receive Switch of the Control Change or Volume on the Receive MIDI page is set to OFF.
- If the value set with the switches on the panel differs from the value set on the expansion sound module, send the value set on the panel to the sound module again.

3. Waveform List

No.	Wave Name	No.	Wave Name	No.	Wave Name	No.	Wave Name
1	Ac Piano 1	41	SYN VOX 1	81	Rattles	121	REV SN 4
2	SA Rhodes 1	42	SYN VOX 2	82	Tin Wave	122	REV Kick 1
3	SA Rhodes 2	43	Male Ooh	83	Spectrum 1	123	REV Cup
4	E.Piano 1	44	ORG VOX	84	808 SNR 1	124	REV Tom
5	E.Piano 2	45	VOX Noise	85	90's Snare	125	REV Cow Bell
6	Clav 1	46	Soft Pad	86	Piccolo SN	126	REV TAMB
7	Organ 1	47	JP Strings	87	LA Snare	127	REV Conga
8	Jazz Organ	48	Pop Voice	88	Whack Snare	128	REV Maracas
9	Pipe Organ	49	Fine Wine	89	Rim Shot	129	REV Crash 1
10	Nylon GTR	50	Fantasynth	90	Bright Kick	130	REV Brush 1
11	6STR GTR	51	Fanta Bell	91	Verb Kick	131	REV Brush 2
12	GTR HARM	52	ORG Bell	92	Round Kick	132	REV Brush 3
13	Mute GTR 1	53	Agogo	93	808 Kick	133	REV Tom Hl
14	Pop Strat	54	Bottle Hit	94	Closed HAT 1	134	REV Tom Lo
15	Stratus	55	Vibes	95	Closed HAT 2	135	REV Ride
16	SYN GTR	56	Marimba Wave	96	Open HAT 1	136	REV Ped Hat
17	Harp 1	57	Log Drum	97	Crash 1	137	Brush Slap
18	SYN Bass	58	DIGI Bell 1	98	Ride 1	138	Brush Swish
19	Pick Bass	59	DIGI Chime	99	Ride Bell 1	139	Brush Roll
20	E.Bass	60	Steel Drums	100	Power Tom Hi	140	Tom Hl
21	Fretless 1	61	MMM VOX	101	Power Tom Lo	141	Tom Lo
22	Upright BS	62	Spark VOX	102	Cross Stick1	142	Ride 2
23	Slap Bass 1	63	Wave Scan	103	808 Claps	143	Pedal HAT 1
24	Slap & Pop	64	Wire String	104	Cowbell 1	144	Open Triangl
25	Slap Bass 2	65	Lead Wave	105	Tambourine	145	Ac Piano2 pA
26	Slap Bass 3	66	Synth Saw 1	106	Timbale	146	Ac Piano2 pB
27	Flute 1	67	Synth Saw 2	107	CGA Mute Hi	147	Ac Piano2 pC
28	Trumpet 1	68	Synth Saw 3	108	CGA Mute Lo	148	Ac Piano2 fA
29	Trombone 1	69	Synth Square	109	CGA Slap	149	Ac Piano2 fB
30	Harmon Mute1	70	Synth Pulse1	110	Conga Hi	150	Ac Piano2 fC
31	Alto Sax 1	71	Synth Pulse2	111	Conga Lo	151	AcP 2 Thump
32	Tenor Sax 1	72	Triangle	112	Maracas	152	AcP 2 Up TH
33	French 1	73	Sine	113	Cabasa Cut		
34	Blow Pipe	74	ORG Click	114	Cabasa Up		
35	Bottle	75	White Noise	115	Cabasa Down		
36	Trumpet SECT	76	Wind Agogo	116	REV Steel DR		
37	ST.Strings-R	77	Metal Wind	117	REV Tin Wave		
38	ST.Strings-L	78	Feedbackwave	118	REV SN 1		
39	Mono Strings	79	Anklungs	119	REV SN 2		
40	Pizz	80	Wind Chimes	120	REV SN 3		

Numbers 130—135 and 137—142 use the waveforms of the commercially available "POP" (SR - JV - 80 - 01) expansion board. Also, numbers 145 - 152 were redesigned based on the waveforms of the commercially available "Grand Piano 1" (SO - PCM1 - 04).

4. Preset Data

Internal

● Performance

No	Name
UI01	Milky Way
UI02	Black Hall
UI03	Aflo Brass
UI04	Movie Str
UI05	Analog Pad
UI06	Analog Bs/Ld
UI07	Pipe
UI08	Mad Station
UI09	Bell Pad
UI10	Analog Swell
UI11	Ripper Pad
UI12	Analog Brass
UI13	Analog Orch
UI14	Melancholy
UI15	Hamming Gtr
UI16	Chaos

● Patch

No	Name	No	Name
UI11	Crystal Vox	UI51	Sea Shore
UI12	MIDI Ripper	UI52	Clean Strat
UI13	Soundtrack	UI53	Mighty Pad
UI14	Poly Brass	UI54	Reso Brass
UI15	Nice Piano	UI55	Jimmee Dee !
UI16	Blow Lead	UI56	Sax Lead
UI17	Ultima Bass	UI57	Untamed Bass
UI18	Amazon Moon	UI58	Morning
UI21	Von Greece	UI61	JV Heaven
UI22	BrightGuiter	UI62	Gtr Strings
UI23	Octava Strng	UI63	Wavox
UI24	Brass Sect.	UI64	Afro Horn
UI25	Blissful	UI65	West Coast
UI26	Square Lead	UI66	Doctor Bob
UI27	Rubber Bs 3	UI67	5 - Strng Bass
UI28	X/Y/Z	UI68	House Hunter
UI31	Pulsynswell	UI71	Utakata
UI32	Nylon Chorus	UI72	Classical Gt
UI33	Orch Power	UI73	ChuChu Vox
UI34	Mistress Brs	UI74	Brass Attack
UI35	Stackoid	UI75	Mr.Mellow!
UI36	Sawteeth	UI76	Belly Lead
UI37	Slap !!!	UI77	Mondo Bass
UI38	Kolor	UI78	Ice Hall
UI41	Shakusphere	UI81	Ebb Tide
UI42	Rhythmatic	UI82	Gtr Fantasia
UI43	Vocal Oohz	UI83	Reso Swell
UI44	Hybrid Bones	UI84	Jam Brass
UI45	Fantasia JV	UI85	JV Rhodes
UI46	Doo Lead	UI86	Key Power !!
UI47	Super JX Bs	UI87	Radio Bass
UI48	Echo Riser	UI88	Arctic Winds

Preset A

● Performance

No	Name
A01	Jazz Split
A02	Softly.....
A03	Bossa nova
A04	Jazzygroove
A05	OLD Bar
A06	FUNKY
A07	Pop Fusion
A08	Fusion Set
A09	Heavy
A10	Rokin Split
A11	Brass Rock
A12	Hard Wire
A13	Perc Harmnix
A14	Classy Piano
A15	Perc Strings
A16	Pop Orchestra

● Patch

No	Name	No	Name
A11	A.Piano 1	A51	Tria Bells
A12	A.Piano 2	A52	Wave Bells
A13	A.Piano 3	A53	Vibrobell
A14	A.Piano 4	*A54	Chime Inn
A15	A.Piano 1Tx4	A55	E.Organ
*A16	Rock Grand	A56	Jazz Organ 1
A17	MIDIed Grand	A57	Jazz Organ 2
A18	Pop Piano 1	*A58	Rock Organe
A21	Country Bar	*A61	Jazz Rattler
*A22	Stack Major	A62	Fine Organ
A23	Pop Piano 2	A63	Metal Organ
A24	RD Rhodes 1	A64	Organarimba
A25	Dig Rhodes 1	A65	Pipe Organ 1
A26	Dig Rhodes 2	A66	Pipe Organ 2
A27	Stiky Rhodes	A67	Church Organ
A28	Guitr Rhodes	*A68	Weddin Time
A31	Pop Piano 3	A71	Nylon Gtr 1
A32	FM.Piano	A72	Nylon Gtr 2
*A33	Hi – Cut Ep	A73	Flanged Nyln
A34	MIDI EPiano	A74	SteelGuitar1
A35	Clav 1	A75	SteelGuitar2
*A36	Pulse Klav	A76	Velo Harmnix
*A37	Wire Klav	A77	12 strings
*A38	Flange Clav	*A78	Fake12string
A41	Warm Vibe	A81	JC Strat
A42	Vibe	A82	Clean Strat
A43	Marimba	*A83	Strata
A44	Lumber Jacow	A84	Stratus
A45	Toy Box	A85	SwitchOnMute
A46	Steel Drum	A86	Syn Strat
*A47	Islands	A87	Syn Guitar
*A48	AfricaMetals	A88	Overdrive

Patches indicated with a (*) are identical to those contained in the Roland Sound Library, "Contemporary COMPOSER by ANDREW SHLESINGER" (PN - JV80 - 05).

● **To restore the JV - 90's internal memory to the factory default settings,** first turn its power OFF. Then while holding down the NUMBER [8] button, turn power back ON again. You can then follow the messages that appear in the display and press [ENTER] then [WRITE]. To cancel the procedure, press [EXIT].

Preset B

● Performance

No	Name
B01	GTR Players
B02	Synth Plus
B03	PianoEnsembl
B04	Church Choir
B05	YMBA Choir
B06	THE MALLETS
B07	South Shore
B08	Guitar Club
B09	for CompuMix
B10	Introduction
B11	House Sounds
B12	Cosmo Space
B13	Acoustics
B14	Finale!!
B15	Perseverance
B16	New Listening

● Patch

No	Name	No	Name
B11	Woody Bass 1	B51	Brass Sect 1
B12	Woody Bass 2	B52	Brass Sect 2
B13	Hip Bass	B53	Brass Combo
B14	Rock Bass	*B54	Fake Brass
*B15	Pick Bass	*B55	Stab Brass
B16	Thumpin Bass	B56	Brass Swell
B17	Fretless 1	*B57	Sax Section
B18	Fretless 2	B58	Horn Brass
B21	Analog Bs	B61	Trumpet 1
B22	House Bass	B62	Trumpet 2
B23	Wonder Bass	B63	Trombone
B24	Yowza Bass	B64	Harmon Mute1
B25	Rubber Bs 1	B65	Harmon Mute2
B26	Rubber Bs 2	B66	French Horn
*B27	Asid Base	B67	Alto Sax 1
*B28	Doom Bass	B68	Alto Sax 2
B31	St Strings	B71	Tenor Sax 1
B32	Warm Strings	B72	Tenor Sax 2
B33	Slow Strings	B73	Flute mod
B34	SoarinString	B74	Piccolo
B35	Marcato	B75	Air Lead
*B36	Big Stringer	B76	Pan Pipe 1
*B37	Score String	B77	Pan Pipe 2
B38	TremoloStrng	B78	OverblownPan
B41	JP Strings 1	B81	Ocarina
B42	JP Strings 2	B82	Blow Square
*B43	Synstringer	B83	Saku Pipe
B44	String Synth	B84	Whistle 1
B45	Pizzicato	B85	Whistle 2
B46	Real Pizz	B86	Orch Stab 1
*B47	Pick It	B87	Brite Stab
B48	Harp	B88	Orch Stab 2

Preset C

● Performance

No	Name
C01	Pik - A - Dee
C02	ProgresSplit
C03	Space Travel
C04	Mondo Mono!!
C05	Stringers
C06	Wash Comp
C07	Tinkle Wish
C08	World 7
C09	Dune
C10	Braz Bande
C11	Ethnotick
C12	Lite JV
C13	Rim Cue
C14	Bio Hiss
C15	Organic
C16	So Lo

● Patch

No	Name	No	Name
C11	Saw Lead	C51	Poly MG
C12	Syn SAX Lead	C52	Dist Line
C13	Soft Lead 1	C53	Julia Pad
C14	Soft Lead 2	C54	Analog Horn
C15	Harmo Lead	C55	Warm Brass
C16	Reso Lead	C56	Brass Pad
C17	Pulse Lead	C57	SoulfulBrass
C18	MMM Lead	C58	Ana Brass
C21	Clav Lead	C61	Pizeza Hutt
C22	Square	*C62	JV Pizzottle
C23	OB Lead	*C63	Bio East
*C24	High Lyle	*C64	Spook Metal
C25	VOX Lead 1	C65	Journey East
C26	VOX Lead 2	*C66	Lite Delay
C27	WhistlinAtom	C67	Velocifex
*C28	Russiastan	*C68	Rezitan
C31	Touch Lead	*C71	Like Dee
*C32	Digirez Lead	C72	Huff N Stuff
C33	Another Lead	*C73	Bit World
C34	A.T DCO Lead	*C74	Meta Compa
*C35	Feed Leed	C75	Stratosphere
C36	Real Pulse	C76	Les Rhythmo
C37	Box Lead	C77	Heavens Door
C38	Chu Ning !	C78	World Peace
*C41	Lorise	*C81	Lovley World
C42	Old man	*C82	Williamsong
*C43	Duo Saw	C83	Son Of Atmos
*C44	Wa - saw Phaze	C84	Autumn Breez
*C45	Big Saw	*C85	On The Wire
C46	Old Saw	*C86	Easternal
C47	Pollyanna	*C87	Snake Up
C48	Poly Portame	C88	Brassy VOX

Patches indicated with a (*) are identical to those contained in the Roland Sound Library, "Contemporary COMPOSER by ANDREW SHLESINGER" (PN - JV80 - 05).

Preset D

● Performance ● Patch

No	Name
D01	Space Vox
D02	Ethnic Bomb
D03	Fanta Brass
D04	Retro Str
D05	LittleWorld
D06	SFX
D07	Wistle Lead
D08	Oriental Brs
D09	Wire Keys
D10	Cosmic Pad
D11	Maturation
D12	Poly Synth
D13	Hyper Sonic
D14	Stack Strngs
D15	BellAtlantis
D16	Reverse Fx

No	Name	No	Name
D11	Beauty Vox	D51	Ebb tide Pad
D12	New Age Vox	*D52	Tangerine
D13	Vento Voxx	D53	MillennlumJV
D14	Pvox Oooze	D54	Fantacy Vox
D15	Vocal Oohz 2	*D55	Wisp Rush
D16	JV Vox	*D56	Neurise
D17	Arasian Morn	D57	Mouse Pad
*D18	Love Trans	D58	Nature Pad
D21	Cosmo Vox 2	*D61	Slo Slagg
D22	Aurora	D62	Starsearch
D23	Press - Cooker	*D63	Atlantis
D24	YASURAGI	D64	Vortex CAfe
D25	Space Ahh	D65	4thDimension
*D26	Pick - a - Doodl	*D66	Hy Entropy
D27	DooWah Diddy	D67	Mellowtron
D28	Pop Voice	D68	Power Saw
D31	Analog Pad 1	D71	Big n Beefy
D32	JP - 8 Pad	D72	Canal Zone
D33	Analog Pad 2	*D73	Hie Cue
D34	Analog Str	D74	Talking Pad
D35	Analog Orch	D75	MMM Pad
D36	SpaciosSweep	*D76	Low Wind
*D37	Story Pad	*D77	SuspendTrump
*D38	The Pad	*D78	Andromida
D41	Wire Strings	*D81	The Scope
*D42	Rimms	D82	Hammer Bell
*D43	Slo Ep	*D83	Flue Taloo
D44	Glasswaves 1	*D84	BeezleBreath
D45	Glasswaves 2	D85	DistanceCall
D46	Glass 1T	D86	Analog Seq
D47	Glass Pad	D87	Reverse Mad
D48	Hardy Winery	D88	RevCymBend

Patches indicated with a (*) are identical to those contained in the Roland Sound Library, "Contemporary COMPOSER by ANDREW SHLESINGER" (PN - JV80 - 05).

JV - 80 Compatible Preset a

● Performance ● Patch

No	Name
a01	Jazz Split
a02	Softly.....
a03	Bossa nova
a04	Jazzygroove
a05	OLD Bar
a06	FUNKY
a07	Pop Fusion
a08	Fusion Set
a09	Heavy
a10	Rokin Split
a11	Brass Rock
a12	Hard Wire
a13	Perc Harmnix
a14	Classy Piano
a15	Perc Strings
a16	PopOrchestra

No	Name	No	Name
a11	A.Piano 1	a51	Nylon Gtr 1
a12	A.Piano 2	a52	Flanged Nyln
a13	Mellow Piano	a53	Steel Guitar
a14	Pop Piano 1	a54	PickedGuitar
a15	Pop Piano 2	a55	12 strings
a16	Pop Piano 3	a56	Velo Harmnlx
a17	MIDIed Grand	a57	Nylon+Steel
a18	Country Bar	a58	SwitchOnMute
a21	Glist El Pno	a61	JC Strat
a22	MIDI EPiano	a62	Stratus
a23	SA Rhodes	a63	Syn Strat
a24	Dig Rhodes 1	a64	Pop Strat
a25	Dig Rhodes 2	a65	Clean Strat
a26	Stiky Rhodes	a66	Funk Gtr
a27	Guitr Rhodes	a67	Syn Guitar
a28	Nylon Rhodes	a68	Overdrive
a31	Clav 1	a71	Fretless
a32	Clav 2	a72	St Fretless
a33	Marimba	a73	Woody Bass 1
a34	Marimba SW	a74	Woody Bass 2
a35	Warm Vibe	a75	Analog Bs 1
a36	Vibe	a76	House Bass
a37	Wave Bells	a77	Hip Bass
a38	Vibrobell	a78	RockOut Bass
a41	Pipe Organ 1	a81	Slap Bass
a42	Pipe Organ 2	a82	Thumpin Bass
a43	Pipe Organ 3	a83	Pick Bass
a44	E.Organ 1	a84	Wonder Bass
a45	E.Organ 2	a85	Yowza Bass
a46	Jazz Organ 1	a86	Rubber Bs 1
a47	Jazz Organ 2	a87	Rubber Bs 2
a48	Metal Organ	a88	Stereoww Bs

JV - 80 Compatible Preset b

● Performance ● Patch

No	Name
b01	GTR Players
b02	Synth Plus
b03	PianoEnembl
b04	Church Choir
b05	YMBA Choir
b06	THE MALLETS
b07	South Shore
b08	Guitar Club
b09	for CompuMix
b10	Introduction
b11	House Sounds
b12	Cosmo Space
b13	Acoustics
b14	Finale!!
b15	Perseverance
b16	NewListening

No	Name	No	Name
b11	Pizzicato	b51	Brass Combo
b12	Real Pizz	b52	Stab Brass
b13	Harp	b53	Soft Brass
b14	SoarinString	b54	Horn Brass
b15	Warm Strings	b55	French Horn
b16	Marcato	b56	AltoLead Sax
b17	St Strings	b57	Alto Sax
b18	Orch Strings	b58	Tenor Sax 1
b21	Slow Strings	b61	Tenor Sax 2
b22	Velo Strings	b62	Sax Section
b23	BrightStrngs	b63	Sax Tp Tb
b24	TremoloStrng	b64	FlutePiccolo
b25	Orch Stab 1	b65	Flute mod
b26	Brite Stab	b66	Ocarina
b27	JP — 8 Strings	b67	OverblownPan
b28	String Synth	b68	Air Lead
b31	Wire Strings	b71	Steel Drum
b32	New Age Vox	b72	Log Drum
b33	Arasian Morn	b73	Box Lead
b34	Beauty Vox	b74	Soft Lead
b35	Vento Voxx	b75	Whistle
b36	Pvox Oooze	b76	Square Lead
b37	GlassVoices	b77	Touch Lead
b38	Space Ahh	b78	NightShade
b41	Trumpet	b81	Pizza Hutt
b42	Trombone	b82	EP+Exp Pad
b43	Harmon Mute1	b83	JP — 8 Pad
b44	Harmon Mute2	b84	Puff
b45	TeaJay Brass	b85	SpaciosSweep
b46	Brass Sect 1	b86	Big n Beefy
b47	Brass Sect 2	b87	RevCymBend
b48	Brass Swell	b88	INITIAL DATA

* To select the JV - 80 compatible Presets a/b, hold down [PCM CARD (A/B)] while you press [USER].
* Within the Patches, Performances, and Rhythm Sets at the JV - 80 compatible preset memory (a/b), there are some which are identical to those stored in Preset Memory (A/B/C/D).
* If you need "Analog Seq", select the preset patch D86 (P.129). The patch b88 is the initial data of the JV - 80.

Rhythm Set

		Internal	Preset A	Preset B
		Tone Name	Tone Name	Tone Name
C2	36	Bright Kick	Bright Kick	Bright Kick
	37	Cross Stick 1	Cross Stick 1	Cross Stick 1
	38	90's Snare	90's Snare	Piccolo SN
	39	808 Claps	808 Claps	808 Claps
	40	LA Snare	90's Snare	LA Snare
	41	Power Tom Lo	Power Tom Lo	Power Tom Lo
	42	Closed HAT 1	Closed HAT 1	Closed HAT 1
	43	Power Tom Lo	Power Tom Lo	Power Tom Lo
	44	Closed HAT 2	Closed HAT 2	Closed HAT 2
	45	Power Tom Hi	Power Tom Hi	Power Tom Lo
	46	Open HAT 1	Open HAT 1	Open HAT 1
	47	Power Tom Hi	Power Tom Hi	Power Tom Lo
C3	48	Power Tom HI	Power Tom HI	Power Tom HI
	49	Crash 1	Crash 1	Crash 1
	50	Power Tom HI	Power Tom Hi	Power Tom HI
	51	Ride 1	Ride 1	Ride 1
	52	Ride Bell 1	Tin Wave	Crash 1
	53	REV SN 1	Ride Bell 1	Ride Bell 1
	54	Tambourine	Tambourine	Crash 1
	55	REV SN 2	Spectrum 1	Crash 1
	56	Cowbell 1	Cowbell 1	Cowbell 1
	57	REV SN 3	Crash 1	Crash 1
	58	Cowbell 1	Crash 1	Cowbell 1
	59	REV SN 4	Piccolo SN	Crash 1
C4	60	CGA Mute Hi	CGA Mute Hi	CGA Mute Hi
	61	CGA Mute Lo	CGA Mute Lo	Conga Hi
	62	CGA Slap	CGA Slap	CGA Slap
	63	Conga Hi	Conga Hi	Conga Lo
	64	Conga Lo	Conga Lo	CGA Mute Lo
	65	Timbale	Timbale	Timbale
	66	Timbale	Timbale	Timbale
	67	Agogo	Power Tom Lo	Timbale
	68	Agogo	LA Snare	Timbale
	69	Cabasa Up	Cabasa Up	Agogo
	70	Maracas	Maracas	Agogo
	71	Cabasa Down	Cabasa Down	Cabasa Up
C5	72	Maracas Cut	Cabasa Cut	Cabasa Down
	73	808 Kick	Whack Snare	Maracas
	74	808 SNR 1	Verb Kick	Cabasa Cut
	75	DIGI Bell 1	Rim Shot	Tambourine
	76	808 SNR 1	Round Kick	Log Drum
	77	808 Kick	808 Kick	DIGI Bell 1
	78	Spectrum 1	Cabasa Down	DIGI Chime
	79	808 Kick	REV Steel DR	Steel Drums
	80	Spectrum 1	REV Tin Wave	Anklungs
	81	808 Kick	REV SN 1	Wind Chimes
	82	Spectrum 1	REV SN 2	Rattles
	83	808 Kick	REV SN 3	Ronund Kick
C6	84	808 Kick	Wind Chimes	808 Kick
	85	Feedbackwave	REV Kick	808 Kick
	86	808 Kick	Anklungs	808 SNR 1
	87	Feedbackwave	Rattles	REV TAMB
	88	Pop Voice	REV Cow Bell	90's Snare
	89	Pop Voice	REV TAMB	Closed HAT 1
	90	Wind Agogo	REV Conga	Tin Wave
	91	Pop Voice	REV Maracas	Spectrum 1
	92	Wind Agogo	REV Crash 1	REV Steel DR
	93	Open HAT 1	Steel Drums	REV Tin Wave
	94	Anklungs	Wind Agogo	REV SN 1
	95	Open HAT 1	Wind Agogo	REV Crash 1
C7	96	Open HAT 1	808 SNR 1	REV Cow Bell

* On the JV-90, 808 SNR (switched off) is assigned to Key Numbers 26-35 and 97-103. You can use them by editing data. Edited data can be written in UI and UC. (P.90)

		Preset C	Preset D
		Tone Name	Tone Name
C3	36	Bright Kick	Verb Kick
	37	Cross Stick 1	Cross Stick 1
	38	90's Snare	90's Snare
	39	808 Claps	808 Claps
	40	90's Snare	Piccolo SN
	41	Power Tom Lo	Tom Lo
	42	Closed HAT 1	Closed HAT 1
	43	Power Tom Lo	Power Tom Lo
	44	Closed HAT 2	Closed HAT 2
	45	Power Tom Hi	Tom Hi
	46	Open HAT 1	Open HAT 1
	47	Power Tom Hi	Power Tom Lo
C4	48	Power Tom Hi	Tom Hi
	49	Crash 1	Crash 1
	50	Power Tom Hi	Power Tom Hi
	51	Ride 1	Ride 1
	52	Ride Bell 1	Ride 2
	53	Ride Bell 1	Ride Bell 1
	54	Tambourine	Tambourine
	55	Spectrum 1	REV SN 2
	56	Cowbell 1	Cowbell 1
	57	Crash 1	Crash 1
	58	Crash 1	LA Snare
	59	Piccolo SN	REV SN 4
C5	60	CGA Mute Hi	CGA Mute Hi
	61	CGA Mute Lo	CGA Mute Lo
	62	CGA Slap	CGA Slap
	63	Conga Hi	Conga Hi
	64	Conga Lo	Conga Lo
	65	Timbale	Timbale
	66	Timbale	Timbale
	67	Cross Stick 1	Agogo
	68	LA Snare	Agogo
	69	Cabasa Up	Cabasa Up
	70	Maracas	Maracas
	71	Cabasa Down	Cabasa Down
C6	72	Cabasa Cut	Cabasa Cut
	73	808 Kick	Rattles
	74	808 Kick	Wind Chimes
	75	808 SNR 1	DIGI Bell 1
	76	808 SNR 1	REV SN 3
	77	Wind Chimes	808 Kick
	78	Cabasa Down	Spectrum 1
	79	REV SN 1	808 SNR 1
	80	REV SN 3	Spectrum 1
	81	REV Tom	808 Kick
	82	REV SN 2	Spectrum 1
	83	REV Cow Bell	Bright Kick
C7	84	Wind Chimes	808 Kick
	85	White Noise	Round Kick
	86	Anklungs	Whack Snare
	87	Rattles	Rim Shot
	88	Rattles	LA Snare
	89	REV Crash 1	Brush Slap
	90	Cowbell 1	Pedal HAT 1
	91	REV Maracas	Brush Swish
	92	REV Crash 1	Open Triangl
	93	90's Snare	Brush Roll
	94	Wind Agogo	Open Triangl
	95	Closed HAT 1	Conga Lo
C8	96	808 SNR 1	Open HAT 1

* On the JV-90, 808 SNR (switched off) is assigned to Key Numbers 28-35 and 97-103. You can use them by editing data. Edited data can be written in UI and UC. (P.90)

JV - 80 Compatible Rhythm Set

		Preset a	Preset b
		Tone Name	Tone Name
C2	36	Bright Kick	Bright Kick
	37	Cross Stick 1	Cross Stick 1
	38	90's Snare	Piccolo SN
	39	808 Claps	808 Claps
	40	90's Snare	LA Snare
	41	Power Tom Lo	Power Tom Lo
	42	Closed HAT 1	Closed HAT 1
	43	Power Tom Lo	Power Tom Lo
	44	Closed HAT 2	Closed HAT 2
	45	Power Tom Hi	Power Tom Lo
	46	Open HAT 1	Open HAT 1
	47	Power Tom Hi	Power Tom Lo
C3	48	Power Tom Hi	Power Tom Hi
	49	Crash 1	Crash 1
	50	Power Tom Hi	Power Tom Hi
	51	Ride 1	Ride 1
	52	Tin Wave	Crash 1
	53	Ride Bell 1	Ride Bell 1
	54	Tambourine	Crash 1
	55	Spectrum 1	Crash 1
	56	Cowbell 1	Cowbell 1
	57	Crash 1	Crash 1
	58	Crash 1	Cowbell 1
	59	Piccolo SN	Crash 1
C4	60	CGA Mute Hi	CGA Mute HI
	61	CGA Mute Lo	Conga Hi
	62	CGA Slap	CGA Slap
•	63	Conga Hi	Conga Lo
	64	Conga Lo	CGA Mute Lo
	65	Timbale	Timbale
	66	Timbale	Timbale
	67	Power Tom Lo	Timbale
	68	LA Snare	Timbale
	69	Cabasa Up	Agogo
	70	Maracas	Agogo
	71	Cabasa Down	Cabasa Up
C5	72	Maracas Cut	Cabasa Down
	73	Whack Snare	Maracas
	74	Verb Kick	Maracas Cut
	75	Rim Shot	Tambourine
	76	Round Kick	Log Drum
	77	808 Kick	DIGI Bell 1
	78	Cabasa Down	DIGI Chime
	79	REV Steel DR	Steel Drums
	80	REV Tin Wave	Ankiungs
	81	REV SN 1	Wind Chimes
	82	REV SN 2	Rattles
	83	REV SN 3	Ronund Kick
C6	84	Wind Chimes	808 Kick
	85	REV Kick	808 Kick
	86	Anklungs	808 SNR 1
	87	Rattles	REV TAMB
	88	REV Cow Bell	90's Snare
	89	REV TAMB	Closed HAT 1
	90	REV Conga	Tin Wave
	91	REV Maracas	Spectrum 1
	92	REV Crash	REV Steel DR
	93	Steel Drum	REV Tin Wave
	94	Wind Agogo	REV SN 1
	95	Wind Agogo	REV Crash 1
C7	96	808 SNR 1	REV Cow Bell

* To select the JV - 80 compatible Presets a/b, hold down [PCM CARD (A/B)] while you press [USER].
* Within the Patches, Performances, and Rhythm Sets at the JV - 80 compatible preset memory (a/b), there are some which are identical to those stored in Preset Memory (A/B/C/D).
* On the JV-90, 808 SNR (switched off) is assigned to Key Numbers 28-35 and 97-103. You can use them by editing data. Edited data can be written in UI and UC. (P.90)

5.MIDI Reference

Roland Exclusive Messages

1. Data Format for Exclusive Messages

Roland's MIDI implementation uses the following data format for all exclusive messages (type IV):

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
CMD	Command ID
[BODY]	Main data
F7H	End of exclusive

#MIDI status: F0H, F7H

An exclusive message must be flanked by a pair of status codes, starting with a Manufacturer-ID immediately after F0H (MIDI version 1.0).

#Manufacturer-ID : 41H

The Manufacturer-ID identifies the manufacturer of a MIDI instrument that triggers an exclusive message. Value 41H represents Roland's Manufacturer-ID.

#Device-ID: DEV

The Device-ID contains a unique value that identifies the individual device in the multiple implementation of MIDI instruments. It is usually set to 00H – 0FH, a value smaller by one than that of a basic channel, but value 00H 1FH may be used for a device with multiple basic channels.

#Model-ID : MDL

The Model-ID contains a value that uniquely identifies one model from another. Different models, however, may share an identical Model-ID if they handle similar data.

The Model-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Model-IDs, each representing a unique model:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

#Command-ID : CMD

The Command-ID indicates the function of an exclusive message. The Command-ID format may contain 00H in one or more places to provide an extended data field. The following are examples of valid Command-IDs, each representing a unique function:

01H
02H
03H
00H, 01H
00H, 02H
00H, 00H, 01H

#Main data : BODY

This field contains a message to be exchanged across an interface. The exact data size and contents will vary with the Model-ID and Command-ID.

2. Address-mapped Data Transfer

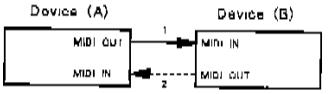
Address mapping is a technique for transferring messages conforming to the data format given in Section 1. It assigns a series of memory-resident records--waveform and tone data, switch status, and parameters, for example--to specific locations in a machine dependent address space, thereby allowing access to data residing at the address a message specifies.

Address-mapped data transfer is therefore independent of models and data categories. This technique allows use of two different transfer procedures: one way transfer and handshake transfer.

One-way transfer procedure (See Section 3 for details.)

This procedure is suited for the transfer of a small amount of data. It sends out an exclusive message completely independent of a receiving device status.

Connection Diagram

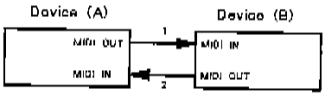


Connection at point 2 is essential for "Request data" procedures. (See Section 3.)

#Handshake-transfer procedure (This device does not cover this procedure)

This procedure initiates a predetermined transfer sequence (handshaking) across the interface before data transfer takes place. Handshaking ensures that reliability and transfer speed are high enough to handle a large amount of data.

Connection Diagram



Connection at points 1 and 2 is essential.

Notes on the above two procedures

* There are separate Command-IDs for different transfer procedures.
* Devices A and B cannot exchange data unless they use the same transfer procedure, share identical Device-ID and Model ID, and are ready for communication.

3. One-way Transfer Procedure

This procedure sends out data all the way until it stops and is used when the messages are so short that answerbacks need not be checked.
For long messages, however, the receiving device must acquire each message in time with the transfer sequence, which inserts intervals of at least 20 milliseconds in between.

Types of Messages

Message	Command ID
Request data 1	RQ1 (11H)
Data set 1	DT1 (12H)

#Request data #1 : RQ1 (11H)

This message is sent out when there is a need to acquire data from a device at the other end of the interface. It contains data for the address and size that specify designation and length, respectively, of data required.
On receiving an RQ1 message, the remote device checks its memory for the data address and size that satisfy the request.
If it finds them and is ready for communication, the device will transmit a "Data set 1 (DT1)" message, which contains the requested data. Otherwise, the device will send out nothing.

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
11H	Command ID
aaH	Address MSB
⋮	⋮
	LSB
ssH	Size MSB
⋮	⋮
	LSB
sum	Check sum
F7H	End of exclusive

* The size of the requested data does not indicate the number of bytes that will make up a DT1 message, but represents the address fields where the requested data resides.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The same number of bytes comprises address and size data, which, however, vary with the Model-ID.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

#Data set 1 : DT1 (12H)

This message corresponds to the actual data transfer process.
Because every byte in the data is assigned a unique address, a DT1 message can convey the starting address of one or more data as well as a series of data formatted in an address-dependent order.

The MIDI standards inhibit non-real time messages from interrupting an exclusive one. This fact is inconvenient for the devices that support a "sort through" mechanism. To maintain compatibility with such devices, Roland has limited the DT1 to 256 bytes so that an excessively long message is sent out in separate segments.

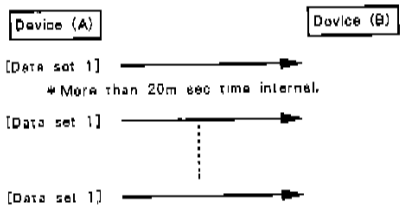
Byte	Description
F0H	Exclusive
41H	Manufacturer ID (Roland)
DEV	Device ID
MDL	Model ID
12H	Command ID
aaH	Address MSB
	LSB
ddH	Data
sum	Check sum
F7H	End of exclusive

* A DT1 message is capable of providing only the valid data among those specified by an RQ1 message.
* Some models are subject to limitations in data format used for a single transaction. Requested data, for example, may have a limit in length or must be divided into predetermined address fields before it is exchanged across the interface.
* The number of bytes comprising address data varies from one Model-ID to another.
* The error checking process uses a checksum that provides a bit pattern where the least significant 7 bits are zero when values for an address, size, and that checksum are summed.

#Example of Message Transactions

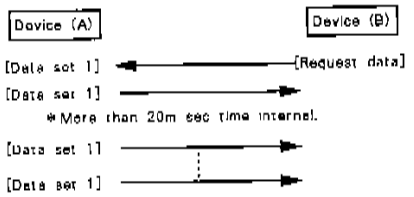
● Device A sending data to Device B

Transfer of a DT1 message is all that takes place.



● Device B requesting data from Device A

Device B sends an RQ1 message to Device A. Checking the message, Device A sends a DT1 message back to Device B.



[EXPANDABLE SYNTHESIZER]

Model JV-90

MIDI Implementation

Date : Oct. 13, 1993

Version : 1.00

1. RECEIVE DATA

■ Channel Voice Message

● Note off

Status	Second	Third
8nH	kkH	vvH
9nH	kkH	00H

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
kk = Note number : 00H – 7FH (0 – 127)
vv = Velocity : 00H – 7FH (0 – 127)

* In the performance mode, ignored when the MIDI receive switch is OFF at each part.
* In the rhythm part (part8), ignored when "ENV mode" is "NO – SUSTAIN" at each rhythm tone.

● Note on

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
kk = Note number : 00H – 7FH (0 – 127)
vv = Velocity : 01H – 7FH (1 – 127)

* In the performance mode, ignored when the MIDI receive switch is OFF at each part.

● Control change

○ Bank select MSB/LSB

Status	Second	Third
BnH	00H	mmH
BnH	20H	llH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
mm = MSB of bank number : 50H – 54H (80 – 84)
ll = LSB of bank number : 00H – 7FH (0 – 127)

* The bank select is suspended until receiving a program change.
* Ignored when "Program bank sel" of the system common is OFF.
* In the patch mode, selected a bank of the patch memory. In the performance mode, selected a bank of the performance part memory. And specified the control channel, selected a bank of the performance itself.
* The bank number specified as follow.

Bank Select MSB	LSB	Program Change	Media (Patch Number)	
80	0	1 – 64	Internal	(#1 #64)
80	0	65 – 128	Data Card	(#1 – #64)
81	0	1 – 64	JV-80 Preset A	(#1 – #64)
81	0	65 – 128	JV-80 Preset B	(#1 – #64)
81	1	1 64	Preset A	(#1 – #64)
81	1	65 – 128	Preset B	(#1 – #64)
81	2	1 – 64	Preset C	(#1 – #64)
81	2	65 128	Preset D	(#1 – #64)
82	0	1 – 64	Data Card	(#1 – #64)
83	0	1 – 128	PCM Card	(#1 – #128)
84	0	1 – 128	Expansion Board	(#1 #128)
84	1	1 – 128	Expansion Board	(#129 – #256)

○ Modulation

Status	Second	Third
BnH	01H	vvH

n = MIDI channel number : 0H – FH (ch.1 ch.16)
vv = Modulation depth : 00H – 7FH (0 – 127)

* The effect of the modulation depends on the value of "Mod1 4" of the patch tone.
* Ignored when "Receive Modulation" of the system common is OFF.

○ Portamento time

Status	Second	Third
BnH	05H	vvH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
vv = Portamento time : 00H – 7FH (0 – 127)

* You can adjust the portamento time of the patch common.
* Ignored when "Receive Control change" of the system common is OFF.

○ Volume

Status	Second	Third
BnH	07H	vvH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
vv = Volume : 00H 7FH (0 – 127)

* You can adjust the volume of specified channel.
* Ignored when "Receive Volume" of the system common is OFF.
* In the performance mode, ignored when the volume receive switch is OFF at each part.
* Ignored when "Volume switch" of the patch tone is OFF.

○ Pan

Status	Second	Third
BnH	0AH	vvH

n = MIDI channel number : 0H FH (ch.1 ch.16)
vv = Pan : 00H – 7FH (0 127)

* "0" represents left end, "64" represents the center, and "127" represents right end.
* Ignored when "Receive Control change" of the system common is OFF.

○ Expression

Status	Second	Third
BnH	0BH	vvH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
vv = Expression : 00H 7FH (0 – 127)

* The effect of the expression depends on the value of "Expl 4" of the patch tone.
* Ignored when "Receive Control change" of the system common is OFF.

○ Hold1

Status	Second	Third
BnH	40H	vvH

n = MIDI channel number : 0H FH (ch.1 ch.16)
vv = Control value : 00H – 7FH (0 127) 0 – 63 = OFF 64 – 127 = ON

* Notes played can be sustained for as long as the time that elapses between turning hold on and turning hold off.
* Ignored when "Receive Control change" of the system common is OFF.
* In the performance mode, ignored when the hold1 receive switch is OFF at each part.
* In the rhythm part (part8), ignored when "ENV mode" is "NO – SUSTAIN" at each rhythm tone.
* Ignored when "Hold – 1 switch" of patch tone is OFF.

○ Portamento

Status	Second	Third
BnH	41H	vvH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
vv = Control value : 00H – 7FH (0 127) 0 – 63 = OFF 64 – 127 = ON

* Switched over "Portamento sw" of patch common.
* Ignore when "Receive Control change" of the system common is OFF.

○ **Effect1 depth(Reverb send level)**

Status	Second	Third
BnH	5BH	vvH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
vv = Control value : 00H – 7FH (0 – 127) 0 – 63 = OFF 64 – 127 = ON

* In the patch mode, switched over the reverb switch of the system common.
* In the performance mode, switched over the reverb switch of the performance part.
  And specified the control channel, switched over the reverb switch of the system common.
* Ignore when "Receive Control change" of the system common is OFF.

○ **Effect3 depth(Chorus send level)**

Status	Second	Third
BnH	5DH	vvH

n = MIDI channel number : 0H – FH (0 – 15) (ch.1 – ch.16)
vv = Control value : 00H – 7FH (0 – 127) 0 – 63 = OFF 64 – 127 = ON

* In the patch mode, switched over the chorus switch of the system common.
* In the performance mode, switched over the chorus switch of the performance part.
  And specified the control channel, switched over the chorus switch of the system common.
* Ignored when "Receive Control change" of the system common is OFF.

○ **RPN MSB/LSB**

Status	Second	Third
BnH	65H	mmH
BnH	64H	llH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
mm = MSB of the specified parameter by RPN
ll = LSB of the specified parameter by RPN

○ **Data entry MSB/LSB**

Status	Second	Third
BnH	06H	mmH
BnH	26H	llH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
mm = MSB of the value of the parameter specified with RPN
ll = LSB of the value of the parameter specified with RPN

* Ignored when "Receive Control change" of the system common is OFF.

**** RPN ****

RPN (registered parameter number) is a parameter number of tone color or musical expression defined in MIDI specification.
With the JV 90 as the receiver, RPN # 0 (pitch bend sensitivity), RPN # 1 (fine tuning) and RPN # 2 (coarse tuning) are effective. When sending an RPN to the JV 90, first specify the MSB and LSB of the RPN to be used to control a parameter and then set the value in the data entry field.

RPN		Data entry		Description
MSB	LSB	MSB	LSB	
00H	00H	mmH	---	Pitch bend sensitivity mm : 00H – 0CH (0 – 12 semitone) ll : Ignored (Up to 1 octave) * You can adjust "Bend range up" and "Bend range down" at same time. * In the rhythm part(part8), this message is not recognized.
00H	01H	mmH	llH	Fine tuning mm, ll : 20H, 00H – 40H, 00H : 60H, 00H (-50 – 0 – +50 cent) * In the patch mode, adjusted the master tune. * In the performance mode, adjusted fine tune at each part. * In the performance mode, specified control channel, changed the master tune.
00H	02H	mmH	---	Coarse tuning mm : 10H – 40H 70H (-48 – 0 – +48 semitone) ll : Ignored * In the patch mode, this message is not recognized. * In the performance mode, adjusted coarse tune at each part.
7FH	7FH	---	---	RPN reset mm, ll : Ignored * Return to no specified parameter of RPN. Current setting value is no change.

● **Program change**

Status	Second
CnH	ppH

n = MIDI channel number : 0H – FH (ch.1 ch.16)
pp = Program number : 00H – 7FH (prog.1 – prog.128)

* Ignored when "Receive Program change" of the system common is OFF.
* When the JV 90 receives a program change on a part receive channel while in the performance mode, it changes the patches of that part; the new patch value being the program number plus 1. If the JV – 90 receives the program change on the control channel, it changes the performance.

● **Channel pressure**

Status	Second
DnH	vvH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
vv = Pressure value : 00H – 7FH (0 – 127)

* The effect of the Channel pressure depends on the value of "After1 – 4" of the patch tone.
* Ignored when "Receive Aftertouch" of the system common is OFF.

● **Pitch bend change**

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number : 0H – FH (ch.1 – ch.16)
mm, ll = Pitch bend change : 00H, 00H – 7FH, 7FH (–8192 0 – +8191)

* Ignored when "Receive Pitch bend" of the system common is OFF.

■ **Channel Mode Message**

● **Reset All Controllers**

Status	Second	Third
BnH	79H	00H

n = MIDI channel number : 0H FH (ch.1 ch.16)

* Received this message, The controllers is set the following.

Controller	Value
Modulation	0(off)
Volume	127(maximum)
Pan	64(center)
Expression	0(off)
Hold1	0(off)
Channel pressure	0(off)
Pitch bend change	±0(center)
RPN	No specified parameter, value is no change.

● **Local control**

Status	Second	Third
BnH	7AH	vvH

n = MIDI channel number : 0H - FH (ch.1 ch.16)
vv = Value : 00H, 7FH (0, 127) 0 = OFF 127 = ON

● **All notes off**

Status	Second	Third
BnH	7BH	00H

n = MIDI channel number : 0H - FH (ch.1 - ch.16)

* When this message is recognized, all the notes which have been turned on by MIDI note on message are turned off.

● **OMNI OFF**

Status	Second	Third
BnH	7CH	00H

n = MIDI channel number : 0H - FH (ch.1 - ch.16)

* Recognized as all notes off.

● **OMNI ON**

Status	Second	Third
BnH	7DH	00H

n = MIDI channel number : 0H - FH (ch.1 - ch.16)

* Recognized as all notes off. (JV 90 doesn't recognize OMNI ON.)

● **MONO**

Status	Second	Third
BnH	7EH	mmH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
mm = Number of mono : 0H - FH (0 - 16)

* Switched over "Assign mode" of patch common.
* Recognized as all notes off, and set MODE4 (M = 1) at each part.

● **POLY**

Status	Second	Third
BnH	7FH	00H

n = MIDI channel number : 0H - FH (ch.1 - ch.16)

* Switched over "Assign mode" of patch common.
* Recognized all notes off, and set MODE3 at each part.

■ **System Realtime message**

● **Active sensing**

Status
FEH

* When JV - 90 receive "active sensing", it measures time intervals between incoming messages. If the subsequent message will not come within about 300 ms after previous one, JV - 90 turn off all MIDI - on notes as if it receive "reset all controllers", and stop measuring message interval.

■ **System Exclusive Message**

Status	Data
F0H	iiH ddH .....eeH
F7H	

F0H : System exclusive
ii = Manufacturer ID : 41H (65)
dd .....ee = Data : 00H - 7FH (0 - 127)
F7H : EOX (End of exclusive)

Ignored when "Receive Exclusive" of the system common is OFF.
Refer to section 3, 4.

2. TRANSMIT DATA

■ **Channel Voice Data**

● **Note off**

Status	Second	Third
8nH	kkH	vvH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
kk = Note number : 00H - 7FH (0 - 127)
vv = Velocity : 00H - 7FH (0 - 127)

* In the performance mode, not transmit when the MIDI transmit switch is OFF at each part.

● **Note on**

Status	Second	Third
9nH	kkH	vvH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
kk = Note number : 00H 7FH (0 - 127)
vv = Velocity : 01H - 7FH (1 - 127)

* In the performance mode, not transmit when the MIDI transmit switch is OFF at each part.

● **Control change**

* The function of the Modualtion lever is determined by control number 1 (modulation).
* The function of the Hold pedal is determined by control number 64 (hold1).
* Control numbers 0 - 95 can be assigned to Pedal1, Pedal2 and C1.

Status	Second	Third
BnH	ccH	vvH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
cc = Control number : 0H 3FH, 46H 5FH (0 - 63, 70 - 95)
vv = Control value : 00H - 7FH (0 127)

Status	Second	Third
BnH	ccH	vvH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
cc = Control number : 40H 45H (64 69)
vv = Control value : 00H, 7FH (0, 127)

* Control change messages will not be transmitted when the following parameter are set :

Control number	TRANSMIT MIDI
0, 32(Bank Select)	Bnk=OFF
1, 33(Modulation)	Mod=OFF
7, 39(Volume)	Vol=OFF
2 - 6, 8 - 31, 34 - 38, 40 - 95	C.C=OFF

● Program change

Status	Second
CnH	ppH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
pp = Program number : 00H - 7FH (prog.1 - prog.128)

* Not transmit when "Transmit Program change" of the system common is OFF.

● Channel pressure

Status	Second
DnH	vvH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
vv = Value : 00H - 7FH (0 - 127)

* Not transmit when "Transmit Afterrouch" of the system common is OFF.

● Pitch band change

Status	Second	Third
EnH	llH	mmH

n = MIDI channel number : 0H - FH (ch.1 - ch.16)
mm,ll = Value : 00H,00H - 7FH,7FH (-8192 - +8191)

* Not transmit when "Transmit Pitch bend" of the system common is OFF.

■ System Real Time Message

● Active sensing

Status
FEH

* This message transmit at about 300 milli seconds interval.

■ System Exclusive Message

Status	Data
F0H	iiH ddH .....eeH
F7H	

F0H : System exclusive
ii = Manufacturer ID : 41H (65)
dd .....ee = Data : 00H - 7FH (0 - 127)
F7H : EOX (End of exclusive)

Refer to section 3, 1.

3. Exclusive communications

The JV-90 can send and receive parch parameter, etc using the system exclusive message.
The model ID code of the JV-90 is 46H. The device ID code is to be determined by the unit number setting of MIDI function.

The JV-90 ignores GS exclusive messages other than scale tune parameter. The model ID of the GS is 42H.

■ One way communication

● Request data 1 RQ1 (11H)

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID (Dev = UNIT # - 1)
46H	Model ID (JV-90)
11H	Command ID (RQ1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Size MSB
ffH	Size
ggH	Size
hhH	Size LSB
sum	Check sum
F7H	EOX (End of exclusive)

* Receive only : the JV-90 does not send this message.

● Data set 1 DT1 (12H)

1. JV-90 (MODEL ID = 46H)

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID (Dev = UNIT # - 1)
46H	Model ID (JV-90)
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address
ddH	Address LSB
eeH	Data
:	:
ffH	Data
sum	Check sum
F7H	EOX (End of exclusive)

2. GS (MODEL ID = 42H)

Byte	Description
F0H	Exclusive status
41H	Manufacturer ID (Roland)
Dev	Device ID (Dev = UNIT # - 1)
42H	Model ID (GS)
12H	Command ID (DT1)
aaH	Address MSB
bbH	Address
ccH	Address LSB
eeH	Data
:	:
ffH	Data
sum	Check sum
F7H	EOX (End of Exclusive)

Note : When the device ID is 7FH, JV-90 can receive the GS exclusive message even if the unit number is anything.

4. Parameter address map

Address and size are configured in 7 bits, and expressed in hexadecimal.

Address	MSB			LSB
Binary	0aaa aaaa	0bbb bbbb	0ccc cccc	0ddd dddd
7-bit hex	AA	BB	CC	DD

Size	MSB			LSB
Binary	0sss ssss	0ttt tttt	0uuu uuuu	0vvv vvvv
7 bit hex	SS	TT	UU	VV

■ Parameter base address

All data sent in exclusive message are given particular addresses to identify parameters. These addresses are the sum of the base address and offset address. Some parameters are defined using multiple offsets.
The address included in the message of a data set or a data request must be within the value shown in the table below.

Note : A pair of two addresses preceded by the symbol ± represents a divided by-two data. e.g. the data A8H (hex) is divided into 0AH and 08H and sent in that order.
Note : Parameters associated with address following the symbol % are for JV-880 and invalid with the JV-90.

Example of exclusive data
To set the reverb type of the temporary performance common to "DELAY", send the following data to the JV-90.

F0H	41H	10H	45H	12H	00H	00H	10H	0DH	06H	5DH	F7H
1	2	3	4	5		6			7	8	9

1. Exclusive status
2. Manufacturer ID : Roland = 41H.
3. Device ID : the unit number of the system common parameter minus 1. In this example, the unit number is 17 : 17 − 16 which is expressed as 10H in hexadecimal notation.
4. Model ID of the JV-90 is 45H.
5. Command ID : data set 1 = 12H.
6. Addresses : by referring to Table 1, the start address of the temporary performance = 00H 00H 10H 00H ; from Table 1-2, offset address of performance common = 00H 00H ; from Table 1-2-1, offset address of reverb type = 0DH. These addresses are added together :

```
  00H 00H 10H 00H
        00H 00H
+)          0DH
 ---------------
  00H 00H 10H 0DH  = target address
```

7. The number of "DELAY" is 6 : 06H in hexadecimal.
8. Check sum
The error checking process uses a checksum and provides a bit pattern where the last significant 7 bits are zero, when values for an address, data (or size) and the checksum are summed.

<Example>
80H = (00H + 00H + 10H + 00H + 06H) & 7FH = 80H

Address Data

9. End of exclusive

1 JV-90

< MODEL ID = 46H >

Start address	Description	
00 00 00 00	System Common	*1-1
00 00 10 00	Temporary Performance	*1-2
00 00 20 00	Performance Mode Temporary Patch (Part 1)	*1-3
00 01 20 00	Performance Mode Temporary Patch (Part 2)	
:	:	
00 06 20 00	Performance Mode Temporary Patch (Part 7)	
00 07 40 00	Temporary Rhythm Setup	*1-4
00 08 20 00	Patch Mode Temporary Patch	*1-3
00 20 00 00	Temporary Rhythm Setup 2	*1-4
01 00 10 00	Internal Performance I01	*1-2
01 01 10 00	Internal Performance I02	
:	:	
01 0F 10 00	Internal Performance I16	
01 20 00 00	Internal Rhythm Setup 2	*1-5
01 40 20 00	Internal Patch I11	*1-3
01 41 20 00	Internal Patch I12	
:	:	
01 7F 20 00	Internal Patch I88	
01 7F 40 00	Internal Rhythm Setup	*1-4
02 00 10 00	Card Performance C01	*1-2
02 01 10 00	Card Performance C02	
:	:	
02 0F 10 00	Card Performance C16	
02 20 00 00	Card Rhythm Setup 2	*1-5
02 40 20 00	Card Patch C11	*1-3
02 41 20 00	Card Patch C12	
:	:	
02 7F 20 00	Card Patch C88	
02 7F 40 00	Card Rhythm Setup	*1-4

*1-1 System Common

Offset address	Description		
00	0000 000a	Panel mode	0 - 1 (PERFORMANCE, PATCH)
01	0aaa aaaa	Master tune	1 - 127 (427.4 - 452.6)
02	0aaa aaaa	Key transpose	28 - 100
03	0000 000a	Transpose Switch	0 - 1
04	0000 000a	Reverb switch	0 - 1 (OFF, ON)
05	0000 000a	Chorus switch	0 - 1 (OFF, ON)
06	0000 000a	Hold polarity	0 - 1
07	0000 000a	Pedal 1 polarity	0 - 1
08	0000 00aa	Pedal 1 mode	0 - 3
09	0aaa aaaa	Pedal 1 assign	0 - 100
0A	0000 000a	Pedal 2 polarity	0 - 1
0B	0000 00aa	Pedal 2 mode	0 - 3
0C	0aaa aaaa	Pedal 2 assign	0 - 100
0D	0000 00aa	C1 mode	0 - 3
0E	0aaa aaaa	C1 assign	0 - 100
0F	0aaa aaaa	Afterrouch threshold	0 - 127
		MIDI receive switch	
10	0000 000a	Volume	0 - 1 (OFF, ON)
11	0000 000a	Control change	0 - 1 (OFF, ON)
12	0000 000a	Channel pressure	0 - 1 (OFF, ON)
13	0000 000a	Modulation	0 - 1 (OFF, ON)
14	0000 000a	Pitch bend	0 - 1 (OFF, ON)
15	0000 000a	Program change	0 - 1 (OFF, ON)
16	0000 000a	Bank select	0 - 1 (OFF, ON)
		MIDI transmit switch	

	17	0000 000a	Volume	0 1	
	18	0000 000a	Control change	0 - 1	
	19	0000 000a	Channel pressure	0 - 1	
	1A	0000 000a	Modulation	0 1	
	1B	0000 000a	Bender	0 - 1	
	1C	0000 000a	Program change	0 - 1	
	1D	0000 000a	Bank select	0 - 1	
	1E	0000 aaaa	Patch receive channel	0 - 15 (1 - 16)	
	1F	000a aaaa	Patch transmit channel	0 - 17	
	20	000a aaaa	Control channel	0 - 16 (1 - 16, OFF)	
%	21	0000 000a	Output mode	0 - 1 (OUT2, OUT4)	
%	22	0000 000a	Rhythm edit key	0 - 1 (INT&MIDI, INT)	
	23	0000 0000	Scale tune switch	0 - 1 (OFF, ON)	
	24	0aaa aaaa	Scale Tune Part1 C	0 - 127 (-64 - +63)	
	25	:	: C#		
	26	:	: D		
	27	:	: D#		
	28	:	: E		
	29	:	: F		
	2A	:	: F#		
	2B	:	: G		
	2C	:	: G#		
	2D	:	: A		
	2E	:	: A#		
	2F	:	: B		
	30	0aaa aaaa	Scale Tune Part2 C	0 - 127 (-64 - +63)	
	31	:	: C#		
	32	:	: D		
	33	:	: D#		
	34	:	: E		
	35	:	: F		
	36	:	: F#		
	37	:	: G		
	38	:	: G#		
	39	:	: A		
	3A	:	: A#		
	3B	:	: B		
	3C	0aaa aaaa	Scale Tune Part3 C	0 - 127 (-64 - +63)	
	3D	:	: C#		
	3E	:	: D		
	3F	:	: D#		
	40	:	: E		
	41	:	: F		
	42	:	: F#		
	43	:	: G		
	44	:	: G#		
	45	:	: A		
	46	:	: A#		
	47	:	: B		
	48	0aaa aaaa	Scale Tune Part4 C	0 - 127 (-64 - +63)	
	49	:	: C#		
	4A	:	: D		
	4B	:	: D#		
	4C	:	: E		
	4D	:	: F		
	4E	:	: F#		
	4F	:	: G		
	50	:	: G#		
	51	:	: A		
	52	:	: A#		
	53	:	: B		
	54	0aaa aaaa	Scale Tune Part5 C	0 - 127 (-64 - +63)	
	55	:	: C#		
	56	:	: D		
	57	:	: D#		
	58	:	: E		
	59	:	: F		
	5A	:	: F#		
	5B	:	: G		
	5C	:	: G#		
	5D	:	: A		
	5E	:	: A#		
	5F	:	: B		
	60	0aaa aaaa	Scale Tune Part6 C	0 - 127 (-64 - +63)	
	61	:	: C#		
	62	:	: D		
	63	:	: D#		
	64	:	: E		
	65	:	: F		
	66	:	: F#		
	67	:	: G		
	68	:	: G#		
	69	:	: A		
	6A	:	: A#		
	6B	:	: B		
	6C	0aaa aaaa	Scale Tune Part7 C	0 - 127 (-64 - +63)	
	6D	:	: C#		
	6E	:	: D		
	6F	:	: D#		
	70	:	: E		
	71	:	: F		
	72	:	: F#		
	73	:	: G		
	74	:	: G#		
	75	:	: A		
	76	:	: A#		
	77	:	: B		
	78	0aaa aaaa	Scale Tune Part8 C	0 - 127 (64 - +63)	
	79	:	: C#		
	7A	:	: D		
	7B	:	: D#		
	7C	:	: E		
	7D	:	: F		
	7E	:	: F#		
	7F	:	: G		
	01 00	:	: C#		
	01 01	:	: A		
	01 02	:	: A#		
	01 03	:	: B		
	01 04	0aaa aaaa	Scale Tune Patch C	0 - 127 (-64 - +63)	
	01 05	:	: C#		
	01 06	:	: D		
	01 07	:	: D#		
	01 08	:	: E		
	01 09	:	: F		
	01 0A	:	: F#		
	01 0B	:	: G		
	01 0C	:	: G#		
	01 0D	:	: A		
	01 0E	:	: A#		
	01 0F	:	: B		
	01 10	0--- ----	(Dummy)		
	01 11	0aaa aaaa	Master volume	0 - 127	
Total Size		00 00 01 12			

1 — 2 Performance

Offset address	Description	
00 00	Performance Common	1 2 1 1
08 00	Performance Part 1	1-2-2
09 00	Performance Part 2	
0A 00	Performance Part 3	
0B 00	Performance Part 4	
0C 00	Performance Part 5	
0D 00	Performance Part 6	
0E 00	Performance Part 7	
0F 00	Performance Part 8	

1—2—1 Performance Common

Offset address	Description		
00	0aaa aaaa	Performance name 1	32 - 127
01	0aaa aaaa	Performance name 2	32 - 127
:	:	:	
0B	0aaa aaaa	Performance name 12	32 127
0C	0000 00aa	Key mode	0 - 2
0D	0000 0aaa	Reverb type	0 - 7 (ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2, DELAY, PAN DLY)
0E	0aaa aaaa	Reverb level	0 - 127
0F	0aaa aaaa	Reverb time	0 - 127
10	0aaa aaaa	Reverb feedback	0 - 127
11	0000 00aa	Chorus type	0 - 2 (CHORUS1, CHORUS2, CHORUS3)
12	0aaa aaaa	Chorus level	0 - 127
13	0aaa aaaa	Chorus depth	0 - 127
14	0aaa aaaa	Chorus rate	0 - 127
15	0aaa aaaa	Chorus feedback	0 - 127
16	0000 000a	Chorus output	0 - 1 (MIX, REV)
17	000a aaaa	Part 1 Voice reserve	0 - 28
18	000a aaaa	Part 2 Voice reserve	0 - 28
:	:	:	
1E	000a aaaa	Part 8 Voice reserve	0 - 28
Total Size	00 00 00 1F		

Note : The sum of voice receives must be less than or equal 28.

1—2—2 Performance Part

Offset address	Description		
00	0000 000a	Transmit switch	0 - 1
01	0000 aaaa	Transmit channel	0 - 15
02	0000 aaaa 0000 bbbb	Transmit program change	0 - 128
04	0000 aaaa 0000 bbbb	Transmit volume	0 - 128
06	0000 aaaa 0000 bbbb	Transmit pan	0 - 128
08	0aaa aaaa	Transmit key range lower	0 - 127
09	0aaa aaaa	Transmit key range upper	0 - 127
0A	0aaa aaaa	Transmit key transpose	28 - 100
0B	0aaa aaaa	Transmit velocity sense	1 - 127
0C	0aaa aaaa	Transmit velocity max	0 - 127
0D	0000 0aaa	Transmit velocity curve	0 - 6
0E	0000 000a	Internal switch	0 - 1
0F	0aaa aaaa	Internal key range lower	0 - 127
10	0aaa aaaa	Internal key range upper	0 - 127
11	0aaa aaaa	Internal key transpose	28 - 100
12	0aaa aaaa	Internal velocity sense	1 - 127
13	0aaa aaaa	Internal velocity max	0 - 127
14	0000 0aaa	Internal velocity curve	0 - 6
15	0000 000a	Receive switch	0 - 1 (OFF, ON)
16	0000 aaaa	Receive channel	0 - 15 (1 - 16)
17	0000 aaaa 0000 bbbb	Patch number	0 - 255 (I01 - I64, C01 - C64, A01 - A64, B01 - B64)
19	0aaa aaaa	Part level	0 - 127
1A	0aaa aaaa	Part pan	0 - 127 (L64 - 63R)
1B	0aaa aaaa	Part coarse tune	16 - 112 (-48 - +48)
1C	0aaa aaaa	Part fine tune	14 - 114 (-50 - +50)
1D	0000 000a	Reverb switch	0 - 1 (OFF, ON)
1E	0000 000a	Chorus switch	0 - 1 (OFF, ON)
1F	0000 000a	Receive program change	0 - 1 (OFF, ON)
20	0000 000a	Receive volume	0 - 1 (OFF, ON)
21	0000 000a	Receive hold-1	0 - 1 (OFF, ON)
22	0000 00aa	Output select	0 - 2 (MN, SB, PAT)
23	0000 00aa	Patch media	0 3 (BASIC, PRESET, EXP, PCM)
24	0000 000a	Sequencer switch	0 - 1 (ON, OFF)
Total Size	00 00 00 25		

Note : The values of the transmit key range upper must be greater than or equal to the values of the transmit key range lower.

Note : The values of the internal key range upper must be greater than or equal to the values of the internal key range lower.

*1—3 Patch

Offset address	Description	
00 00	Patch Common	1-3-1
08 00	Patch Tone 1	1-3-2
09 00	Patch Tone 2	
0A 00	Patch Tone 3	
0B 00	Patch Tone 4	

*1—3—1 Patch Common

Offset address	Description		
00	0aaa aaaa	Patch name 1	32 - 127
01	0aaa aaaa	Patch name 2	32 - 127
:	:	:	
0B	0aaa aaaa	Patch name 12	32 - 127
0C	0000 000a	Velocity switch	0 - 1 (OFF, ON)
0D	0000 0aaa	Reverb type	0 - 7 (ROOM1, ROOM2, STAGE1, STAGE2, HALL1, HALL2, DELAY, PAN-DLY)
0E	0aaa aaaa	Reverb level	0 - 127
0F	0aaa aaaa	Reverb time	0 - 127
10	0aaa aaaa	Delay feedback	0 - 127
11	0000 00aa	Chorus type	0 - 2 (CHORUS1, CHORUS2, CHORUS3)
12	0aaa aaaa	Chorus level	0 - 127
13	0aaa aaaa	Chorus depth	0 - 127
14	0aaa aaaa	Chorus rate	0 - 127
15	0aaa aaaa	Chorus feedback	0 - 127
16	0000 000a	Chorus output	0 - 1 (MIX, REV)
17	0aaa aaaa	Analog feel	0 - 127
18	0aaa aaaa	Patch level	0 - 127
19	0aaa aaaa	Patch pan	0 - 127 (L64 - 63R)
1A	0aaa aaaa	Bender range down	16 - 64 (-48 - 0)
1B	0000 aaaa	Bender range up	0 - 12
1C	0000 000a	Key assign	0 - 1 (POLY, SOLO)
1D	0000 000a	Solo legato	0 - 1 (OFF, ON)
1E	0000 000a	Portamento switch	0 - 1 (OFF, ON)
1F	0000 000a	Portamento mode	0 - 1 (LEGATO, NORMAL)
20	0000 000a	Portamento type	0 - 1 (TIME, RATE)
21	0aaa aaaa	Portamento time	0 - 127
Total Size	00 00 00 22		

*1-3-2 Patch Tone

Offset address		Description	
00	0000 00aa	Wave group	0 - 2 (INT, EXP, PCM)
# 01	0000 aaaa 0000 bbbb	Wave number	0 - 254 (1 - 255)
03	0000 000a	Tone switch	0 - 1 (OFF, ON)
04	0000 000a	FXM switch	0 - 1 (OFF, ON)
05	0000 aaaa	FXM depth	0 - 15 (1 - 16)
06	0aaa aaaa	Velocity range lower	0 - 127
07	0aaa aaaa	Velocity range upper	0 - 127
08	0000 000a	Volume switch	0 - 1 (OFF, ON)
09	0000 000a	Hold-1 switch	0 - 1 (OFF, ON)
0A	0000 aaaa	Modulation 1 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
0B	0aaa aaaa	Modulation 1 depth	1 - 127 (-63 - +63)
0C	0000 aaaa	Modulation 2 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
0D	0aaa aaaa	Modulation 2 depth	1 - 127 (-63 - +63)
0E	0000 aaaa	Modulation 3 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
* 0F	0aaa aaaa	Modulation 3 depth	1 - 127 (-63 - +63)
10	0000 aaaa	Modulation 4 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
11	0aaa aaaa	Modulation 4 depth	1 - 127 (-63 - +63)
12	0000 aaaa	Aftertouch 1 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
13	0aaa aaaa	Aftertouch 1 depth	1 - 127 (-63 - +63)
14	0000 aaaa	Aftertouch 2 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
15	0aaa aaaa	Aftertouch 2 depth	1 - 127 (-63 - +63)
16	0000 aaaa	Aftertouch 3 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
17	0aaa aaaa	Aftertouch 3 depth	1 - 127 (-63 - +63)
18	0000 aaaa	Aftertouch 4 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
19	0aaa aaaa	Aftertouch 4 depth	1 - 127 (-63 - +63)
1A	0000 aaaa	Expression 1 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
1B	0aaa aaaa	Expression 1 deprh	1 - 127 (-63 - +63)
1C	0000 aaaa	Expression 2 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
1D	0aaa aaaa	Expression 2 depth	1 - 127 (-63 - +63)
1E	0000 aaaa	Expression 3 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
1F	0aaa aaaa	Expression 3 depth	1 - 127 (-63 - +63)
20	0000 aaaa	Expression 4 destination	0 - 12 (OFF, PITCH, CUTOFF, RESONANCE, LEVEL, PITCH LFO1, PITCH LFO2, TVF LFO1, TVF LFO2, TVA LFO1, TVA LFO2, LFO1 RATE, LFO2 RATE)
21	0aaa aaaa	Expression 4 depth	1 - 127 (-63 - +63)
22	0000 0aaa	LFO-1 form	0 - 5 (TRI, SIN, SAW, SQR, RND1, RND2)
23	0000 0aaa	LFO-1 offset	0 - 4 (-100, -50, 0, +50, +100)
24	0000 000a	LFO-1 synchro	0 - 1 (OFF, ON)
25	0aaa aaaa	LFO-1 rate	0 - 127
# 26	0000 aaaa 0000 bbbb	LFO-1 delay	0 - 128 (0 - 127, KEY-OFF)
28	0000 000a	LFO-1 fade polarity	0 - 1 (IN, OUT)
29	0aaa aaaa	LFO-1 fade rime	0 - 127
2A	0aaa aaaa	LFO-1 pitch deprh	1 - 127 (63 - +63)
2B	0aaa aaaa	LFO-1 TVF depth	1 - 127 (-63 - +63)
2C	0aaa aaaa	LFO-1 TVA depth	1 - 127 (-63 - +63)
2D	0000 0aaa	LFO-2 form	0 - 5 (TRI, SIN, SAW, SQR, RND1, RND2)
2E	0000 0aaa	LFO-2 offset	0 - 4 (-100, -50, 0, +50, +100)
2F	0000 000a	LFO-2 synchro	0 - 1 (OFF, ON)
30	0aaa aaaa	LFO-2 rate	0 - 127
# 31	0000 aaaa 0000 bbbb	LFO-2 delay	0 - 128 (0 - 127, KEY-OFF)
33	0000 000a	LFO-2 fade polarity	0 - 1 (IN, OUT)
34	0aaa aaaa	LFO-2 fade time	0 - 127
35	0aaa aaaa	LFO-2 pitch depth	1 - 127 (-63 - +63)
36	0aaa aaaa	LFO-2 TVF depth	1 - 127 (63 - +63)
37	0aaa aaaa	LFO-2 TVA depth	1 - 127 (-63 - +63)
38	0aaa aaaa	Pitch coarse	16 - 112 (-48 - +48)
39	0aaa aaaa	Pitch fine	14 - 114 (-50 +50)
3A	0000 aaaa	Random pitch	0 - 15 (0, 5, 10, 20, 30, 40, 50, 70, 100, 200, 300, 400, 500, 600, 800, 1200)
3B	0000 aaaa	Pitch key follow	0 - 15 (-100, -70, -50, -30, -10, 0, +10, +20, +30, +40, +50, +70, +100, +120, +150, +200)
3C	0aaa aaaa	P-ENV velocity sense	1 - 127 (-63 - +63)
3D	0000 aaaa	P-ENV T1 velocity	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
3E	0000 aaaa	P-ENV T4 velocity	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
3F	0000 aaaa	P ENV time key follow	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
40	0aaa aaaa	P-ENV depth	52 - 76 (-12 - +12)

	41	0aaa aaaa	P ENV time 1	0 - 127
	42	0aaa aaaa	P-ENV level 1	1 - 127 (-63 - +63)
	43	0aaa aaaa	P-ENV time 2	0 - 127
	44	0aaa aaaa	P-ENV level 2	1 - 127 (-63 - +63)
	45	0aaa aaaa	P-ENV time 3	0 - 127
	46	0aaa aaaa	P-ENV level 3	1 - 127 (-63 - +63)
	47	0aaa aaaa	P-ENV time 4	0 - 127
	48	0aaa aaaa	P-ENV level 4	1 - 127 (-63 - +63)
	49	0000 00aa	TVF mode	0 - 2 (OFF, LPF, HPF)
	4A	0aaa aaaa	Cutoff frequency	0 - 127
	4B	0aaa aaaa	Resonance	0 - 127
	4C	0000 000a	Resonance mode	0 - 1 (SOFT, HARD)
	4D	0000 aaaa	TVF key follow	0 - 15 (-100, -70, -50, -30, -10, 0, +10, +20, +30, +40, +50, +70, +100, +120, +150, +200)
	4E	0000 0aaa	TVF-ENV velocity curve	0 - 6 (1 - 7)
	4F	0aaa aaaa	TVF-ENV velocity sense	1 - 127 (-63 - +63)
	50	0000 aaaa	TVF ENV T1 velocity	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	51	0000 aaaa	TVF ENV T4 velocity	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	52	0000 aaaa	TVF-ENV time key follow	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	53	0aaa aaaa	TVF-ENV depth	1 - 127 (-63 - +63)
	54	0aaa aaaa	TVF-ENV time 1	0 - 127
	55	0aaa aaaa	TVF-ENV level 1	0 - 127
	56	0aaa aaaa	TVF ENV time 2	0 - 127
	57	0aaa aaaa	TVF-ENV level 2	0 - 127
	58	0aaa aaaa	TVF-ENV time 3	0 - 127
	59	0aaa aaaa	TVF ENV level 3	0 - 127
	5A	0aaa aaaa	TVF-ENV time 4	0 - 127
	5B	0aaa aaaa	TVF-ENV level 4	0 - 127
	5C	0aaa aaaa	Level	0 - 127
	5D	0000 aaaa	TVA key follow	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
*	5E	0000 aaaa 0000 bbbb	Pan	0 - 128 (L64 - 63R, RND)
	60	0000 aaaa	Panning key follow	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	61	0000 00aa	TVA delay mode	0 - 2 (NORMAL, HOLD, PLAY-MATE)
*	62	0000 aaaa 0000 bbbb	TVA delay time	0 - 128 (0 - 127, KEY-OFF)
	64	0000 0aaa	TVA-ENV velocity curve	0 - 6 (1 - 7)
	65	0aaa aaaa	TVA-ENV velocity sense	1 - 127 (-63 - +63)
	66	0000 aaaa	TVA-ENV T1 velocity	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	67	0000 aaaa	TVA-ENV T4 velocity	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	68	0000 aaaa	TVA-ENV time key follow	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	69	0aaa aaaa	TVA-ENV time 1	0 - 127
	6A	0aaa aaaa	TVA-ENV level 1	0 - 127
	6B	0aaa aaaa	TVA-ENV time 2	0 - 127
	6C	0aaa aaaa	TVA-ENV level 2	0 - 127
	6D	0aaa aaaa	TVA-ENV time 3	0 - 127
	6E	0aaa aaaa	TVA-ENV level 3	0 - 127
	6F	0aaa aaaa	TVA-ENV time 4	0 - 127
	70	0aaa aaaa	Dry level	0 - 127
	71	0aaa aaaa	Reverb send level	0 - 127
	72	0aaa aaaa	Chorus send level	0 - 127
*	73	0000 000a	Output select	0 - 1 (MAIN, SUB)
	74	0000 000a	Redamper switch	0 - 1 (OFF, ON)
	Total Size	00 00 00 75		

Note : The values of the velocity range upper must be greater than or equal to the values of the velocity range lower.

*1—4 Rhythm Setup 1

Offset address	Description	
00 00	Rhythm Note for Key# 36 (C 2)	1-4-1
01 00	37 (C#2)	
02 00	38 (D 2)	
03 00	39 (D#2)	
04 00	40 (E 2)	
05 00	41 (F 2)	
06 00	42 (F#2)	
07 00	43 (G 2)	
08 00	44 (G#2)	
09 00	45 (A 2)	
0A 00	46 (A#2)	
0B 00	47 (B 2)	
0C 00	48 (C 3)	
0D 00	49 (C#3)	
0E 00	50 (D 3)	
0F 00	51 (D#3)	
10 00	52 (E 3)	
11 00	53 (F 3)	
12 00	54 (F#3)	
13 00	55 (G 3)	
14 00	56 (G#3)	
15 00	57 (A 3)	
16 00	58 (A#3)	
17 00	59 (B 3)	
18 00	60 (C 4)	
19 00	61 (C#4)	
1A 00	62 (D 4)	
1B 00	63 (D#4)	
1C 00	64 (E 4)	
1D 00	65 (F 4)	
1E 00	66 (F#4)	
1F 00	67 (G 4)	
20 00	68 (G#4)	
21 00	69 (A 4)	
22 00	70 (A#4)	
23 00	71 (B 4)	
24 00	72 (C 5)	
25 00	73 (C#5)	
26 00	74 (D 5)	
27 00	75 (D#5)	
28 00	76 (E 5)	
29 00	77 (F 5)	
2A 00	78 (F#5)	
2B 00	79 (G 5)	
2C 00	80 (G#5)	
2D 00	81 (A 5)	
2E 00	82 (A#5)	
2F 00	83 (B 5)	
30 00	84 (C 6)	
31 00	85 (C#6)	
32 00	86 (D 6)	
33 00	87 (D#6)	
34 00	88 (E 6)	
35 00	89 (F 6)	
36 00	90 (F#6)	
37 00	91 (G 6)	
38 00	92 (G#6)	
39 00	93 (A 6)	
3A 00	94 (A#6)	
3B 00	95 (B 6)	
3C 00	96 (C 7)	

*1—4—1 Rhythm Note 1

Offset address		Description	
00	0000 00aa	Wave group	0 - 2 (INT, EXP, PCM)

#				
	01	0000 aaaa 0000 bbbb	Wave number	0 - 254 (1 - 255)
	03	0000 000a	Tone switch	0 - 1 (OFF, ON)
	04	0aaa aaaa	Coarse tune	0 - 127 (C-1 - G9)
	05	000a aaaa	Mute group	0 - 31 (OFF, 1 - 31)
	06	0000 000a	Envelope mode	0 - 1 (NO-SUSTAIN, SUSTAIN)
	07	0aaa aaaa	Pitch fine	14 - 114 (-50 - +50)
	08	0000 aaaa	Random pitch	0 - 19 (0, 5, 10, 20, 30, 40, 50, 70, 100, 200, 300, 400, 500, 600, 800, 1200)
	09	0000 aaaa	Bender range	0 - 12
	0A	0aaa aaaa	P-ENV velocity sense	1 - 127 (-63 - +63)
	0B	0000 aaaa	P-ENV time velocity sense	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	0C	0aaa aaaa	P-ENV depth	52 - 76 (-12 - +12)
	0D	0aaa aaaa	P-ENV time 1	0 - 127
	0E	0aaa aaaa	P ENV level 1	1 - 127 (-63 - +63)
	0F	0aaa aaaa	P-ENV time 2	0 - 127
	10	0aaa aaaa	P-ENV level 2	1 - 127 (-63 - +63)
	11	0aaa aaaa	P-ENV time 3	0 - 127
	12	0aaa aaaa	P ENV level 3	1 - 127 (-63 - +63)
	13	0aaa aaaa	P-ENV time 4	0 - 127
	14	0aaa aaaa	P-ENV level 4	1 - 127 (-63 - +63)
	15	0000 00aa	TVF mode	0 - 2 (OFF, LPF, HPF)
	16	0aaa aaaa	Cutoff frequency	0 - 127
	17	0aaa aaaa	Resonance	0 - 127
	18	0000 000a	Resonance mode	0 - 1 (SOFT, HARD)
	19	0aaa aaaa	TVF-ENV velocity sense	1 - 127 (-63 - +63)
	1A	0000 aaaa	TVF ENV time velocity sense	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	1B	0aaa aaaa	TVF ENV depth	1 - 127 (-63 - +63)
	1C	0aaa aaaa	TVF-ENV time 1	0 - 127
	1D	0aaa aaaa	TVF-ENV level 1	0 - 127
	1E	0aaa aaaa	TVF-ENV time 2	0 - 127
	1F	0aaa aaaa	TVF-ENV level 2	0 - 127
	20	0aaa aaaa	TVF-ENV time 3	0 - 127
	21	0aaa aaaa	TVF-ENV level 3	0 - 127
	22	0aaa aaaa	TVF-ENV time 4	0 - 127
	23	0aaa aaaa	TVF-ENV level 4	0 - 127
	24	0aaa aaaa	Level	0 - 127
#	25	0000 aaaa 0000 bbbb	Pan	0 - 128 (L64 - 63R, RND)
	27	0aaa aaaa	TVA-ENV velocity sense	1 - 127 (-63 - +63)
	28	0000 aaaa	TVA-ENV time velocity sense	0 - 14 (-100, -70, -50, -40, -30, -20, -10, 0, +10, +20, +30, +40, +50, +70, +100)
	29	0aaa aaaa	TVA ENV time 1	0 - 127
	2A	0aaa aaaa	TVA-ENV level 1	0 - 127
	2B	0aaa aaaa	TVA-ENV time 2	0 - 127
	2C	0aaa aaaa	TVA-ENV level 2	0 - 127
	2D	0aaa aaaa	TVA-ENV time 3	0 - 127
	2E	0aaa aaaa	TVA-ENV level 3	0 - 127
	2F	0aaa aaaa	TVA-ENV time 4	0 - 127
	30	0aaa aaaa	Dry level	0 - 127
	31	0aaa aaaa	Reverb send level	0 - 127
	32	0aaa aaaa	Chorus send level	0 - 127
%	33	0000 000a	Output select	0 - 1 (MAIN, SUB)
Total Size		00 00 00 34		

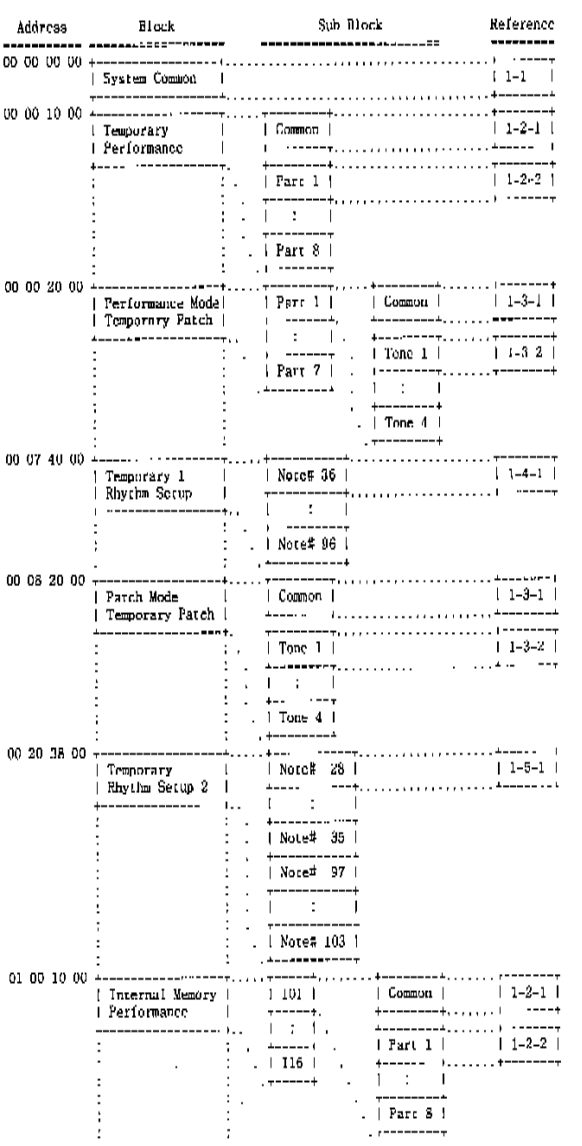
＊1－5 Rhythm Setup 2

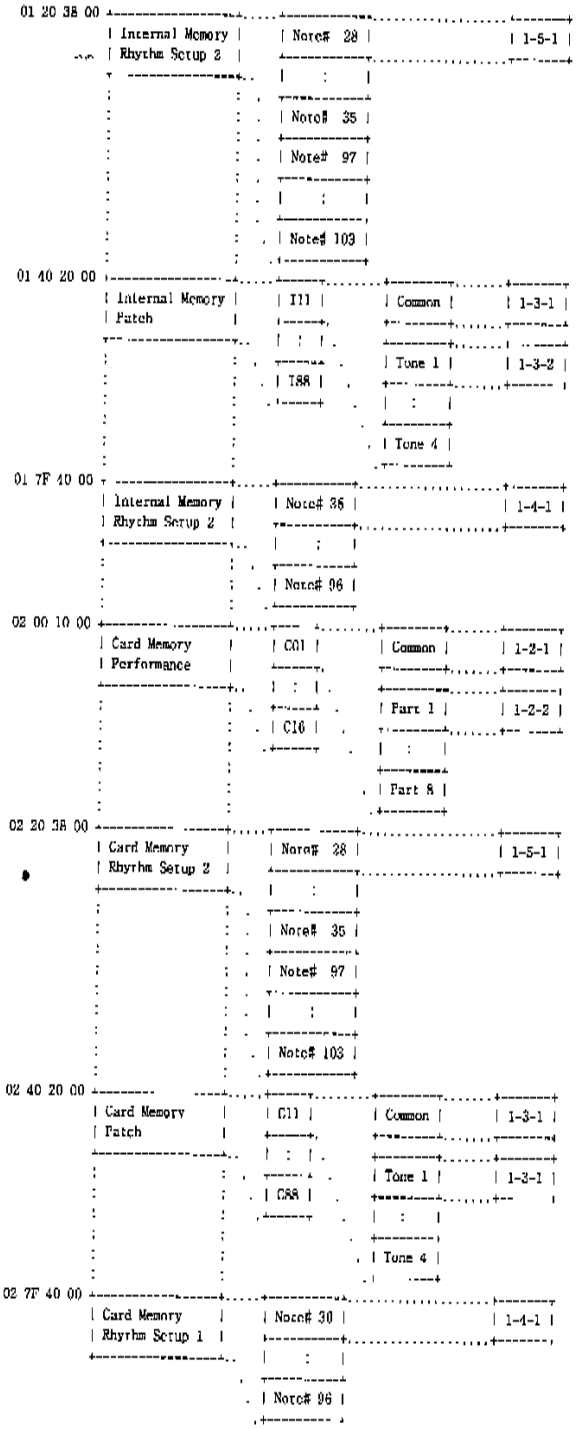
Offset address	Description	
38 00	Rhythm Note for Key# 28 (E 1)	1-5-1
39 00	: 29 (F 1)	
3A 00	: 30 (F#1)	
3B 00	: 31 (G 1)	
3C 00	: 32 (G#1)	
3D 00	: 33 (A 1)	
3E 00	: 34 (A#1)	
3F 00	: 35 (B 1)	
40 00	: 97 (C#7)	
41 00	: 98 (D 7)	
42 00	: 99 (D#7)	
43 00	: 100 (E 7)	
44 00	: 101 (F 7)	
45 00	: 102 (F#7)	
46 00	: 103 (G 7)	

＊1－5－1 Rhythm Note 2

Same as 1－4－1.

--- Address Map ---





2 GS

< MODEL ID = 42H >

Start address	Description		
40 10 40	Scale Tune	Part8	2-1
40 11 40	:	Part1	
40 12 40	:	Part2	
40 13 40	:	Part3	
40 14 40	:	Part4	
40 15 40	:	Part5	
40 16 40	:	Part6	
40 17 40	:	Part7	

2—1 Scale Tune

Offset address	Description			
00	0aaa aaaa	Scale Tune C		00 - 127 (-64 - +63)
01	:	:	C#	
02	:	:	D	
03	:	:	D#	
04	:	:	E	
05	:	:	F	
06	:	:	F#	
07	:	:	G	
08	:	:	G#	
09	:	:	A	
0A	:	:	A#	
0B	:	:	B	
Total Size	00 00 00 0C			

Note : If you send the scale tune data, must send from "C" to "B" (1 oct) per packet.

/ Example of DT1 application /

To set the scale tune (C — B) of the performance part 1 Arabia, send the data as follows ;

F0H 41H 10H 42H 12H 40H 11H 40H 3AH 6DH 3EH 34H 0DH 38H 6BH 3CH 6FH 40H 36H 0FH 50H F7H

● Table A – 1 : Decimal to Hexadecimal

The MIDI messages are expressed in hexadecimal configured in 7 bits. This table is usefull when you read or write MIDI messages.

(D) – decimal
(H) – hexadecimal

(D)	(H)	(D)	(H)	(D)	(H)	(D)	(H)
0	00H	32	20H	64	40H	96	60H
1	01H	33	21H	65	41H	97	61H
2	02H	34	22H	66	42H	98	62H
3	03H	35	23H	67	43H	99	63H
4	04H	36	24H	68	44H	100	64H
5	05H	37	25H	69	45H	101	65H
6	06H	38	26H	70	46H	102	66H
7	07H	39	27H	71	47H	103	67H
8	08H	40	28H	72	48H	104	68H
9	09H	41	29H	73	49H	105	69H
10	0AH	42	2AH	74	4AH	106	6AH
11	0BH	43	2BH	75	4BH	107	6BH
12	0CH	44	2CH	76	4CH	108	6CH
13	0DH	45	2DH	77	4DH	109	6DH
14	0EH	46	2EH	78	4EH	110	6EH
15	0FH	47	2FH	79	4FH	111	6FH
16	10H	48	30H	80	50H	112	70H
17	11H	49	31H	81	51H	113	71H
18	12H	50	32H	82	52H	114	72H
19	13H	51	33H	83	53H	115	73H
20	14H	52	34H	84	54H	116	74H
21	15H	53	35H	85	55H	117	75H
22	16H	54	36H	86	56H	118	76H
23	17H	55	37H	87	57H	119	77H
24	18H	56	38H	88	58H	120	78H
25	19H	57	39H	89	59H	121	79H
26	1AH	58	3AH	90	5AH	122	7AH
27	1BH	59	3BH	91	5BH	123	7BH
28	1CH	60	3CH	92	5CH	124	7CH
29	1DH	61	3DH	93	5DH	125	7DH
30	1EH	62	3EH	94	5EH	126	7EH
31	1FH	63	3FH	95	5FH	127	7FH

* The decimal value of MIDI channel, bank select, program change, etc is the decimal number in the table plus 1.
* In the hexadecimal notation in configured 7 bits, the maximum data of 1 byte is 128. If the data is mode than 128, used plural bytes.
* The signed value is 00H – –64, 40H – ±0, 7FH – +63. In decimal notetion, the value is the decimal number in the table minus 64.
  The signed value of dual bytes is 00 00H = –8192, 40 40H – +0, 7F 7FH = 8191. For example, converted aaH bbH (hex) to decimal to the following : aa bbH – 40H 00H – aa x 128 + bb – 64 x 128.

● table A – 2 : ASCII code

Patch Name and Performance Name of MIDI data are described the ASCII code in the table below.

(H) – hexadecimal

Character	(H)	Character	(H)	Character	(H)
SP	20H				
A	41H	a	61H	1	31H
B	42H	b	62H	2	32H
C	43H	c	63H	3	33H
D	44H	d	64H	4	34H
E	45H	e	65H	5	35H
F	46H	f	66H	6	36H
G	47H	g	67H	7	37H
H	48H	h	68H	8	38H
I	49H	i	69H	9	39H
J	4AH	j	6AH	0	30H
K	4BH	k	6BH	+	2BH
L	4CH	l	6CH	-	2DH
M	4DH	m	6DH	*	2AH
N	4EH	n	6EH	/	2FH
O	4FH	o	6FH	#	23H
P	50H	p	70H	!	21H
Q	51H	q	71H	.	2CH
R	52H	r	72H	.	2EH
S	53H	s	73H		
T	54H	t	74H		
U	55H	u	75H		
V	56H	v	76H		
W	57H	w	77H		
X	58H	x	78H		
Y	59H	y	79H		
Z	5AH	z	7AH		

Note ; "SP" is space.

[EXPANDABLE SYNTHESIZER]

Model JV-90

MIDI Implementation Chart

Date : Oct. 13, 1993

Version : 1.00

Function ...		Transmitted	Recognized	Remarks
Basic	Default	1－16	1－16	
Channel	Changed	1－16	1－16	Memorized
Mode	Default	Mode 3	Mode 3	
	Messages	×	Mode 3, 4 (m＝1)	
	Altered	**********		
Note Number		0－127	0－127	
	True Voice	**********	0－127	
Velocity	Note ON	○	○	
	Note OFF	○	○	
After Touch	Key's	×	×	
	Ch's	○	○	
Pitch Bender		○	○	Resolution : 9 bit
Control Change	0－95	○*1		
	0		○*1	Bank select
	1		○*1	Modulation
	5		○*1	Portamento time
	6, 38		○*1	Data entry
	7		○*1	Volume
	10		○*1	Panpot
	11		○*1	Expression
	64		○*1	Hold1
	65		○*1	Portamento
	91		○*1	Reverb
	93		○*1	Chorus
	100, 101	×	○	RPN LSB, MSB
	121	×	○	Reset all controllers
Prog Change		○*1	○*1	
	True #	**********	0－127	
System Exclusive		○	○	
System Common	Song Pos	×	×	
	Song Sel	×	×	
	Tune	×	×	
System Real Time	Clock	×	×	
	Commands	×	×	
Aux Messages	Local ON/OFF	×	○	
	All Notes OFF	×	○ (123－127)	
	Active Sense	○	○	
	Reset	×	×	
Notes		*1 ○, × can be selectable.		

Mode 1 : OMNI ON, POLY
Mode 2 : OMNI ON, MONO
Mode 3 : OMNI OFF, POLY
Mode 4 : OMNI OFF, MONO

○ : Yes
× : No

■ How to read a MIDI Implementation Chart

○ : MIDI messages that can be transmitted or received.
× : MIDI messages that cannot be transmitted or received.

● Basic Channel

The MIDI channel for transmitting(or receiving) MIDI messages can be specified over this range. The MIDI channel setting is remembered even when the power is turned off.

● Mode

Most recent keyboard use mode 3(omni off, poly).
Reception : MIDI messages are received only on the specified channels, and played polyphonically.
Transmission : All MIDI messages are transmitted on the specified MIDI channel.

※ "Mode" refers to MIDI Mode messages.

● Note Number

This is the range of note numbers that can be transmitted(or received). Note number 60 is middle C(C4).

● Velocity

This is the range over which velocity can be transmitted(or received) by Note On and Note Off messages.

● Aftertouch

Key's : Polyphonic Key Pressure
Ch's : Channel Pressure

● Pitch Bend

The bender range setting of each Tone determines the range of pitch change caused by Pitch Bender messages. When set to 0, Pitch Bender messages will be ignored.

● Control Change

This indicates the control numbers that can be transmitted(or received), and what they will control. For details, refer to the MIDI implementation.

● Program Change

The program numbers in the chart indicate the actual data.(This is one less than the Pitch and Tone program numbers.)

● Exclusive

Exclusive message reception can be turned On/Off.

● Common, Real time

These MIDI messages are used to synchronize sequencers and rhythm machines. The JV-90 does not use these messages.

● Aux messages

These messages are mainly used to keep a MIDI system running correctly. Active sensing transmission can be turned on/off.

6.Index

【A】

Aftertouch 17,41,43,54,112,113
Aftertouch Control 54
Aftertouch Threshold 42,112
Analog feel 52
Assign mode 53,113

【B】

Bank/number 7
Bender range 53,113
Bender/modulation lever 9,17,43,113
Bulk dump 96

【C】

C1 slider 9,17,41,112
Chorus 6,51,80,115
Chorus depth 45,51,80,115
Chorus feedback 51,80,115
Chorus level 51,80,115
Chorus rate 45,51,80,115
Chorus send depth 115
Chorus send level 51,80,109,115
Chorus switch (button) 6,76
Chorus type 51,68,80,110
Coarse tune 34,57,76,83,109,114
Command 87
Common 50,66,67
Compare 90
Control 41,53,81,113
Control change 41,54,81
Control channel 43,103
Copy 91,96
Cursor 18
Cutoff 60,84,109,114
Cutoff key follow 60
C.C ..... →Control change

【D】

DATA card 8,27,88,95
Delay 52,69,81,110,115
Delay feedback 52,69,81,115
Device ID number 44,96
Dry level 51,80

【E】

Edit 48,65,78,113
Effect 6,45,51,68,80,110,114
Envelope mode 81
Envelope time key follow 59,61,64
Exclusive message 44,96,99
Exclusive protect 99
Exclusive receive switch 44
Expansion board ..... →Voice expansion board
→Wave expansion board
Expression control 54
Expression pedal 8,12,54

【F】

Factory setting 127
Filter LFO depth 57
Filter type 59,84
Fine tune 57,76,83,109,114
Foot pedal ..... →Pedal 1/2
Function button 7
FXM(Frequency X — modulation) 55

【G】

GS reset 104

【H】

Hold 13,23,54,77,112
Hold1 33,54,77
Hold1 control switch 54
Hold1 receive switch 77

【I】

Initialize 94,130
Internal max velocity 74
Internal memory 26,31,95,97,99
Internal protect 99
Internal transpose 35,74
Internal velocity curve 74
Internal velocity sensitivity 74
Internal zone 22,31,73
Internal zone key range 73
Int. ..... →Internal

[J]

JV — 80 compatible preset 130

[K]

Key assign 53,113
Key mode 67
Key number 37,79
Key range 70,73

[L]

Layer mode 67
LCD Contrast 38,111
Legato 53
Level 33,38,50,52,69,75,81,85,108,111
Level key follow 62
Level LFO depth 57
LFO 56,57
LFO delay time 56
LFO depth 57
LFO fade mode 56
LFO fade time 56
LFO offset 56
LFO rate 56
LFO synchro 56
LFO waveform 56
Local switch 42,43,66,75
LSB 46,111

[M]

Master key shift 111
Master level 111
Master pan 111
Master tune 38,111
Max velocity 71,74
MIDI 8,22,32,42,55,96,104,112
MIDI receive channel 42,76,108,113
MIDI receive switch 32,44,66,77,106,113
MIDI transmit channel 42,71,108,110
MIDI transmit switch 32,66,72
Mode button 6
Modulation 32,43,113
Modulation control 54
Modulation depth 113
Modulation lever 9,17
MSB 46,111
Mute group 82

[O]

Offset 56,113
Output mode 41,112
Output switch 52,68,81

[P]

Page 7
Pan 33,34,50,62,72,75,85,108,111
Panic 22
Panning key follow 62
Parameter slider 6,48,66
Part 31,65,75,105,106
Part coarse tune 34,76,109,114
Part fine tune 76,109,114
Part information 32
Part level 75,108
Part pan 75,108
Part switch 6,66
Patch 6,16,26,105,107
Patch chorus 51
Patch common copy 92
Patch common parameter 50
Patch edit mode 48
Patch effects 51
Patch group (buttons) 7,16
Patch initialize 94
Patch level 50
Patch MIDI 42
Patch name 50
Patch pan 50
Patch play mode 16
Patch receive channel 42
Patch reverb 52
Patch select 34,90,106
Patch tone copy 92
Patch write 90
PCM card 8,16,27,55,82
Pedal 1/2 9,12,41,54,112
Performance 18,31,65
Performance chorus 68,80
Performance common copy 92
Performance common parameter 67
Performance edit mode 65
Performance effects 45,80

Performance initialize 94
Performance MIDI 43
Performance name 67
Performance part copy 91
Performance play mode 18,31
Performance reverb 69,80
Performance write 88
Pitch 57,83
Pitch bender 9,17,41,43,53,81,113
Pitch envelope 59,83
Pitch envelope depth 58,83
Pitch envelope time key follow 59
Pitch key follow 58
Pitch LFO depth 57
Pitch shift coarse 57,83
Pitch shift fine 57,83
Pitch velocity attack time sensitivity 58
Pitch velocity envelope level sensitivity 58,83
Pitch velocity envelope time sensitivity 83
Pitch velocity release time sensitivity 58
Poly 53,113
Portamento 53
Power up mode 38
Presence Control 9
Program change number 46,110
Program change receive switch 76
Program change 43,46,72,76,110,112
Protect 88,99
P.C ..... → Program change

【R】

Random pitch depth 57,83
Receive channel 42,76,108
Receive MIDI 43
Receive switch 32,44,77,106
Resonance 60,84,109,114
Resonance mode 60,84
Reverb 6,51,80,109,115
Reverb level 45,52,81,115
Reverb send level 51,80,109,115
Reverb switch (button) 6,76
Reverb time 45,52,69,81,115
Reverb type 52,69,81,110
Re – damp switch 54
Rhythm 18,37,78
Rhythm edit mode 78
Rhythm key copy 93
Rhythm key initialize 94
Rhythm play mode 37
Rhythm set 37,78,108
Rhythm set initialize 94
Rhythm set write 90
Rhythm tone 37,79
RX PARTSWITCH 44,113
RX switch 32
Rx. ..... → Receive

【S】

Scale tune 40
Single mode 67
Solo 53
System common parameter 38

【T】

Temporary area 26,31
Threshold 42,112
Tone 20,49
Tone delay 63
Tone level 62,85
Tone select switch 49,79
Tone switch 6,27,37,50,82
Transmit channel 42,71,110
Transmit max velocity 71
Transmit MIDI 43,112
Transmit pan 34,72
Transmit program change(P.C) 43,72,112
Transmit switch 32,34,66,72
Transmit transpose 34,70
Transmit velocity curve 71
Transmit velocity sensitivity 71
Transmit volume 34,72
Transmit zone 70
Transmit zone key range 70
Transpose 34,35,38,70,74,111
Tune 34,38,39,109,111,114
TVA 62,85
TVA envelope 63,86
TVA envelope time key follow 64
TVA level key follow 62
TVA velocity attack time sensitivity 63
TVA velocity curve type 62
TVA velocity level sensitivity 62,85
TVA velocity release time sensitivity 63
TVF 20,84,114
TVF cutoff frequency 60,84,109,114
TVF cutoff key follow 60

TVF envelope 61,84
TVF envelope depth 60,84
TVF envelope time key follow 61
TVF resonance 60,84,109,114
TVF velocity attack time sensitivity 61
TVF velocity curve type 61
TVF velocity envelope level sensitivity 61,84
TVF velocity release time sensitivity 61
TVF TVA envelope attack 109,114
TVF TVA envelope decay 109,114
TVF TVA envelope release 109,114
TX switch 32
Tx. ..... →Transmit

【U】

User memory 99

【V】

Velocity 17
Velocity attack time sensitivity 58,61,63
Velocity curve type 61,62,71,74
Velocity envelope level sensitivity 58,61,83,84
Velocity envelope time sensitivity 83
Velocity range 50
Velocity release time sensitivity 58,61,63
Velocity sense depth 113
Velocity sense offset 113
Velocity sensitivity 71,74
Velocity switch 62
Velocity time sensitivity 84,85
Vibrato 109,110
Voice expansion board 6,102
Voice expansion edit mode 102,113
Voice expansion mode 6
Voice expansion play mode 102,105,106
Voice reserve 76,108
Volume 9,13,23,33,34,72,112
Volume control switch 53
Volume receive switch 43,77
V — EXP ..... →Voice expansion
V — EXP MIDI IN Selector Switch ..... 98,102~104

【W】

Wave expansion board 2,37,55,82
Wave group 37,55,82
Wave number 37,55,82,126
Waveform 20,37,55,82,126
Write 88
Write mode 87
Write protect 99
W — EXP ..... →Wave expansion

7. Specifications

JV-90 : Expandable Synthesizer

● Keyboard
76 keys(with Velocity and Channel Aftertouch)

● Maximum Polyphony :28voices

● Memory
Factory
Patch : 256
Performance : 64
Rhythm Set : 4

Internal
Patch : 64
Performance : 16
Rhythm Set : 1

DATA Card(option)
Patch : 64
Performance : 16
Rhythm Set : 1

● Effects
Chorus : 3types
Reverb : 8types

● Display
40 characters, 2 lines (Backlit LCD)

● Connectors
Output jacks : Mix L(Mono)/R, V - Exp L/R
Stereo headphone jack
Hold jack
Pedal jacks (1,2)
MIDI Connectors (IN, OUT, THRU, V - EXP IN)
Card Slots (PCM Card, DATA Card)

● Dimensions
1200 X 305 X 85 mm
47 - 1/4 X 12 X 3 - 3/8 inches

● Weight
9.9kg(21lbs 13oz)

● Power Consumption
21W (117V), 21W (230V), 21W (240V)

● Accessories
Owner's Manual
Power cord (230V, 240V only)

● Options
DATA card : M - 256E
PCM card : SO - PCM1 series
DATA(ROM)card : PN - JV80 series
Wave expansion board : SR - JV80 series
Voice expansion board : VE series

*In the interest of product development, the specifications and/or appearance of this unit are subject to change without prior notice.

Information

When you need repair service, call your local Roland Service Station or the authorized Roland distributor in your country as shown below.

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MIRIBEL FRANCE
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